

# Recent publications by IBM authors

---

*The information listed here is supplied by the Institute for Scientific Information and other outside sources. Reprints of the papers may be obtained by writing directly to the first author cited. Information on books may be obtained by writing to the publisher.*

• Journals and books are listed alphabetically by title; papers are listed sequentially for each journal.

## A

**Numa Policies and Their Relation to Memory Architecture**, W. J. Bolosky (University of Rochester, Rochester, NY 14620), M. L. Scott (IBM, Yorktown Heights, NY), R. P. Fitzgerald, R. J. Fowler, and A. L. Cox (University of Rochester, Rochester, NY), *ACM Sigplan Notices* 26, No. 4, 212-223 (1991).

**An Efficient Cache-Based Access Anomaly Detection Scheme**, S. L. Min (Pusan National University, Pusan 609735, South Korea) and J. D. Choi (IBM, Yorktown Heights, NY), *ACM Sigplan Notices* 26, No. 4, 235-244 (1991).

**Exploitation of APL Data Parallelism on a Shared Memory MIMD Machine**, D. C. Ju (University of Texas, Austin, TX 78712) and W. M. Ching (IBM, Yorktown Heights, NY), *ACM Sigplan Notices* 26, No. 6, 61-72 (1991).

**Race Frontier Reproducing Data Races in Parallel Program Debugging**, J. D. Choi (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and S. L. Min (Pusan National University, Pusan, South Korea), *ACM Sigplan Notices* 26, No. 6, 145-154 (1991).

**Global Instruction Scheduling for Superscalar Machines**, D. Bernstein and M. Rodeh (IBM Israel, IL-32000 Haifa, Israel), *ACM Sigplan Notices* 26, No. 6, 241-255 (1991).

**A Methodology for Managing Hard Constraints in CLP Systems**, J. Jaffar, S. Michaylov (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and R. H. C. Yap (Carnegie Mellon University, Pittsburgh, PA), *ACM Sigplan Notices* 26, No. 6, 306-316 (1991).

**Optimistic Parallelization of Communicating Sequential Processes**, D. F. Bacon (University of California, Berkeley, CA 94720) and R. E. Strom (IBM, Yorktown Heights, NY), *ACM Sigplan Notices* 26, No. 7, 155-166 (1991).

**A Static Performance Estimator to Guide Data Partitioning Decisions**, V. Balasundaram (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), G. Fox, K. Kennedy (Rice University, Houston, TX), and U. Kremer (Syracuse University, Syracuse, NY), *ACM Sigplan Notices* 26, No. 7, 213-223 (1991).

**User Interface Programming Survey**, B. A. Myers (Carnegie Mellon University, Pittsburgh, PA 15213) and M. B. Rosson (IBM, Yorktown Heights, NY), *ACM Sigplan Notices* 26, No. 8, 19-22 (1991).

**High-Level Language Debugging for Concurrent Programs**, G. S. Goldszmidt, S. Yemini (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and S. Katz (Technion, Israel Institute of Technology), *ACM Transactions on Computer Systems* 8, No. 4, 311-336 (1991).

**Constant Propagation with Conditional Branches**, M. N. Wegman and F. K. Zadeck (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *ACM Transactions on Programming Language and Systems* 13, No. 2, 181-210 (1991).

**INC: A Language for Incremental Computations**, D. M. Yellin and R. E. Strom (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *ACM Transactions on Programming Language and Systems* 13, No. 2, 211-236 (1991).

**Applications of Organic Second-Order Nonlinear Optical Materials**, G. C. Bjorklund, S. Ducharme, W. Fleming, D. Jungbauer, W. E. Moerner, J. D. Swalen, R. J. Twieg, C. G. Willson, and D. Y. Yoon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *ACS Symposium Series* 455, 216-255 (1991).

**Novel Covalently Functionalized Amorphous  $\chi_c$  Nonlinear Optical Polymer: Synthesis and Characterization**, A. Sen, M. Eich (Pennsylvania State University, University Park, PA 16802), R. J. Twieg, and D. Y. Yoon (IBM, San Jose, CA), *ACS Symposium Series* **455**, 250–257 (1991).

**Nonlinear Optical Properties of Substituted Polysilanes and Polygermanes**, R. D. Miller, F. M. Schellenberg, J. C. Baumert, H. Looser, P. Shukla, W. Torruellas, G. C. Bjorklund, S. Kano, and Y. Takahashi (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *ACS Symposium Series* **455**, 636–660 (1991).

**Polynomials Whose Powers Are Sparse**, D. Coppersmith (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and J. Davenport (University of Bath, Avon, England), *Acta Arithmetica* **58**, No. 1, 79–87 (1991).

**Alternative Length Scales for Polycrystalline Materials. I. Microstructure Evolution**, C. S. Nichols, R. F. Cook, D. R. Clarke, and D. A. Smith (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Acta Metallurgica et Materialia* **39**, No. 7, 1657–1665 (1991).

**Alternative Length Scales for Polycrystalline Materials. II. Cluster Morphology**, C. S. Nichols, R. F. Cook, D. R. Clarke, and D. A. Smith (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Acta Metallurgica et Materialia* **39**, No. 7, 1667–1675 (1991).

**Multiply Monotone Functions for Cardinal Interpolation**, M. D. Buhmann (University of Cambridge, Cambridge CB3 9EW, England) and C. A. Micchelli (IBM, Yorktown Heights, NY), *Advances in Applied Mathematics* **12**, No. 3, 358–386 (1991).

**Analysis of Finite-Capacity Polling Systems**, H. Takagi (IBM Japan Ltd., 5-19 Sanban-cho, Chiyoda-ku, Tokyo 102, Japan), *Advances in Applied Probability* **23**, No. 2, 373–387 (1991).

**Solver for Unfactored Implicit Schemes**, M. Vitaletti (IBM Italy, Via Giorgione, I-00147 Rome, Italy), *ALAA Journal* **29**, No. 6, 1003–1005 (1991).

**Analysis of Finite Length Annealing Schedules**, P. N. Strenski and S. Kirkpatrick (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Algorithmica* **6**, No. 3, 346–366 (1991).

**In Defense of Marie Curie**, T. M. Semkow (New York State Department of Health, Albany, NY 12201) and K. W. Semkow (IBM, Yorktown Heights, NY), *American Journal of Physics* **59**, No. 10, 871–872 (1991).

**3Q; 1A**, H. S. Warren, Jr. (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *American Mathematical Monthly* **98**, No. 7, 611–613 (1991).

**Direct Observation of Streptavidin Specifically Adsorbed on Biotin-Functionalized Self-Assembled Monolayers with the Scanning Tunneling Microscope**, L. Haussling (Institut Organische Chemie der Universität, Federal Republic of Germany), B. Michel (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), H. Ringsdorf (Institut Organische Chemie der Universität, Federal Republic of Germany), and H. Rohrer (IBM, Rüschlikon, Switzerland), *Angewandte Chemie* **30**, No. 5, 569–572 (1991).

**Knowledge-Based System for Assessment of Potential Entrepreneurs**, W. T. Jones (University of Alabama, Birmingham, AL 35294), W. S. Martin, M. E. McWilliam, and M. V. Nabors (IBM, San Jose, CA), *Applied Artificial Intelligence* **5**, No. 3, 253–266 (1991).

**A Note on a Block Preconditioner**, M. Tismenetsky (IBM Germany, D-6900 Heidelberg, Federal Republic of Germany), *Applied Mathematics Letters* **4**, No. 2, 75–79 (1991).

**The Wigner Function for Thermal Equilibrium**, H. Steinruck (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and F. Odeh (Vienna Technical University, Vienna, Austria), *Applied Mathematics Letters* **4**, No. 3, 21–24 (1991).

**Angular Scattering from Optical Interference Coatings: Scalar Scattering Predictions and Measurements**, J. M. Zavislan (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Optics* **30**, No. 16, 2224–2244 (1991).

**Optical Methods for Thickness Measurements on Thin Metal Films**, P. Pokrowsky (IBM Germany, P.O. Box 2540, D-6500 Mainz, Federal Republic of Germany), *Applied Optics* **30**, No. 22, 3228–3232 (1991).

**Mapping the Fermi Surface of Graphite with a Display-Type Photoelectron Spectrometer**, A. Santoni, L. J. Terminello, F. J. Himpsel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and T. Takahashi (Tohoku University, Sendai 980, Japan), *Applied Physics A* **52**, No. 5, 299–301 (1991).

**Measurement of the Interfacial Energy Between Amorphous Si and Crystalline Si**, K. N. Tu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics A* **53**, No. 1, 32–34 (1991).

**On the Direct Observation of the Gas-Dynamics of Laser-Pulse Sputtering of Polymers I: Analytical Considerations**, R. Kelly and B. Braren (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics B* **53**, No. 3, 160–169 (1991).

**High Phosphorus Doping of Epitaxial Silicon at Low Temperature and Atmospheric Pressure**, T. O. Sedgwick, P. D. Agnello, D. N. Ngoc, T. S. Kuan, and G. Scilla (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 17, 1896–1898 (1991).

**Magnetic Band Structure at the Fe/GaAs(100) Interface**, F. J. Himpsel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 17, 1920–1922 (1991).

**Characterization of Epitaxial GaAs and AlGa<sub>1-x</sub>As Layers Doped with Oxygen**, M. S. Goorsky (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), T. F. Kuech (University of Wisconsin, Madison, WI), F. Cardone, P. M. Mooney, G. J. Scilla, and R. M. Potemski (IBM, Yorktown Heights, NY), *Applied Physics Letters* **58**, No. 18, 1979–1981 (1991).

**Low Au Content Thermally Stable NiGe(Au)W Ohmic Contacts to n-Type GaAs**, N. Lustig (IBM Corporation, Route 52, Hopewell Junction, NY 12533), M. Murakami, M. Norcott (IBM, Yorktown Heights, NY), and K. McGann (IBM, Hopewell Junction, NY), *Applied Physics Letters* **58**, No. 19, 2093-2095 (1991).

**High Electron Mobility in Modulation-Doped Si/SiGe**, K. Ismail, B. S. Meyerson, and P. J. Wang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 19, 2117-2119 (1991).

**Valence-Band-Edge Shift Due to Doping in p<sup>+</sup> GaAs**, J. A. Silberman, T. J. de Lyon, and J. M. Woodall (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 19, 2126-2128 (1991).

**Efficient Pulsed Laser Removal of 0.2- $\mu$ m Sized Particles from a Solid Surface**, W. Zapka, W. Ziemlich (IBM Germany, Max-Eyth-Strasse 6, D-7032 Sindelfingen, Federal Republic of Germany), and A. C. Tam (IBM, San Jose, CA), *Applied Physics Letters* **58**, No. 20, 2217-2219 (1991).

**Interactive Effects in the Reactive Ion Etching of SiGe Alloys**, G. S. Oehrlein, Y. Zhang, G. M. W. Kroesen, E. de Frésart, and T. D. Bestwick (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 20, 2252-2254 (1991).

**Threshold Shifting in Pseudomorphic Semiconductor-Insulator-Semiconductor Heterostructure Field-Effect Transistors**, S. L. Wright, P. M. Solomon (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), H. Baratte (IBM Germany, Mainz, Federal Republic of Germany), D. C. La Tulipe, and T. N. Jackson (IBM, Yorktown Heights, NY), *Applied Physics Letters* **58**, No. 20, 2285-2287 (1991).

**Low-Temperature Electron Spin Resonance Investigations of Silicon Paramagnetic Defects in Silicon Nitride**, W. L. Warren (Sandia National Laboratories, Albuquerque, NM 87185), F. C. Rong, E. H. Poindexter (U. S. Army, Fort Monmouth, NJ 07703), J. Kanicki (IBM, Yorktown Heights, NY), and G. J. Gerardi (William Paterson College of New Jersey, Wayne, NJ), *Applied Physics Letters* **58**, No. 21, 2417-2419 (1991).

**In Situ Buried GaInAs/Inp Quantum Dot Arrays by Selective Area Metalorganic Vapor Phase Epitaxy**, Y. D. Galeuchet, H. Rothuizen, and P. Roentgen (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Applied Physics Letters* **58**, No. 21, 2423-2425 (1991).

**Magnetization of (100)NiFe Films Deposited on (100)Pd/Cu/Si(100)**, C.-A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 21, 2444-2446 (1991).

**Properties of SiO<sub>2</sub>/Si/GaAs Structures Formed by Solid Phase Epitaxy of Amorphous Si on GaAs**, A. Callegari, D. K. Sadana (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. A. Buchanan (IBM, Hopewell Junction, NY), A. Paccagnella (Università di Padova, via Gradenigo 6a, 35131 Padova, Italy), E. D. Marshall, M. A. Tischler, and M. Norcott (IBM, Yorktown Heights, NY), *Applied Physics Letters* **58**, No. 22, 2540-2542 (1991).

**Submicron YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub>  Grain Boundary Junction DC SQUIDS**, M. Kawasaki, P. Chaudhari, T. H. Newman, and A. Gupta (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 22, 2555-2557 (1991).

**Enhancement of Optical Reflectivity of High T<sub>c</sub> Superconducting Films by Ion Milling**, J. H. Kim (Stanford University, Stanford, CA 94305), K. Char (Conductus Inc., Sunnyvale, CA), I. Bozovic (Varian Research Center, Palo Alto, CA), W. Y. Lee (IBM, San Jose, CA), A. Kapitulnik (Stanford University, Stanford, CA 94305), and J. S. Harris, Jr. (IBM, San Jose, CA), *Applied Physics Letters* **58**, No. 22, 2558-2560 (1991).

**Are Bare Surfaces Detrimental in Epitaxial Growth?**, M. Copel (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and R. M. Tromp (IBM, Yorktown Heights, NY), *Applied Physics Letters* **58**, No. 23, 2648-2650 (1991).

**X-ray Radiation Damage and a Reliability Study on Bipolar Devices**, D. Boyne, L. Hsia, R. Wachnik, R. Decker, and C. Wasik (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Applied Physics Letters* **58**, No. 23, 2687-2689 (1991).

**Giant Magnetoresistance in Antiferromagnetic Co/Cu Multilayers**, S. S. P. Parkin (IBM Corporation, 650 Harry Road, San Jose, CA 95120), Z. G. Li, and D. J. Smith (Arizona State University, Tempe, AZ), *Applied Physics Letters* **58**, No. 23, 2710-2712 (1991).

**Magneto-Optical Recording by Short Pulses**, T. Ohtsuki, S. Owa, and F. Yamada (IBM Corporation, 5-19 Sanbancho, Chiyoda-ku, Tokyo 102, Japan), *Applied Physics Letters* **58**, No. 24, 2842-2844 (1991).

**Role of Bubbles in Laser-Assisted Wet Etching**, B. W. Hussey, B. Haba, and A. Gupta (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 24, 2851-2853 (1991).

**Kelvin Probe Force Microscopy**, M. Nonnenmacher, M. P. O'Boyle, and H. K. Wickramasinghe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **58**, No. 25, 2921-2923 (1991).

**Kinetics of Surface Reactions in Very Low-Pressure Chemical Vapor Deposition of Si from SiH<sub>4</sub>**, S. M. Gates (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and S. K. Kulkarni (IBM, Hopewell Junction, NY), *Applied Physics Letters* **58**, No. 25, 2963-2965 (1991).

**Chemistry of Fluorine in the Oxidation of Silicon**, S. R. Kasi (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), M. Liehr, and S. Cohen (IBM, Yorktown Heights, NY), *Applied Physics Letters* **58**, No. 25, 2975-2977 (1991).

**Diffusion Versus Oxidation Rates in Silicon-Germanium Alloys**, J. Eugene, F. K. LeGoues, V. P. Kesan, S. S. Iyer, and F. M. d'Heurle (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 1, 78-80 (1991).

**Hydrocarbon Reaction with HF-Cleaned Si(100) and Effects on Metal-Oxide-Semiconductor Device Quality**, S. R. Kasi, M. Liehr, P. A. Thiry, H. Dallaporta, and M. Offenber (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 1, 108–110 (1991).

**Multilevel YBaCuO Flux Transformers with High  $T_c$  SQUIDS: A Prototype High  $T_c$  SQUID Magnetometer Working at 77K**, B. Oh, R. H. Koch, W. J. Gallagher, R. P. Robertazzi, and W. Eidelloth (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 1, 123–125 (1991).

**Electro-Optics of Electrically Controlled Birefringence Liquid-Crystal Displays by  $2 \times 2$  Propagation Matrix and Analytic Expression at Oblique Angle**, H. L. Ong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 2, 155–157 (1991).

**High Hydrogen Concentrations Produced by Segregation into  $p^+$  Layers in Silicon**, A. D. Marwick, G. S. Oehrlein, and M. Wittmer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 2, 198–200 (1991).

**Long-Range, Minority-Carrier Transport in High Quality Surface-Free GaAs/AlGaAs Double Heterostructures**, G. D. Gilliland, D. J. Wolford, T. F. Kuech, and J. A. Bradley (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 2, 216–218 (1991).

**Reactive Ion Etching of SiGe Alloys Using HBr**, T. D. Bestwick, G. S. Oehrlein, Y. Zhang, and G. M. W. Kroesen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 3, 336–338 (1991).

**High-Frequency Operation of Heavily Carbon-Doped  $\text{Ga}_{0.51}\text{In}_{0.49}\text{P}$ /GaAs Surface-Emitting Light-Emitting Diodes Grown by Metalorganic Molecular Beam Epitaxy**, T. J. de Lyon, J. M. Woodall, D. T. McInturff, P. D. Kirchner, J. A. Kash, R. J. S. Bates, R. T. Hodgson, and F. Cardone (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 4, 402–404 (1991).

**Thermodynamics of Facet Damage in Cleaved AlGaAs Lasers**, A. Moser (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Applied Physics Letters* **59**, No. 5, 522–524 (1991).

**Monte Carlo-Fluid Hybrid Model of the Accumulation of Dust Particles at Sheath Edges in Radio-Frequency Discharges**, T. J. Sommerer (University of Illinois, 1406 West Green Street, Urbana, IL 61801), M. S. Barnes, J. H. Keller (IBM, Hopewell Junction, NY), M. J. McCaughey, and M. J. Kushner (University of Illinois, Urbana, IL), *Applied Physics Letters* **59**, No. 6, 638–640 (1991).

**High-Differential Mobility of Hot Electrons in Delta-Doped Quantum Wells**, W. T. Masselink (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 6, 694–696 (1991).

**Silicon Mach-Zehnder Waveguide Interferometers Based on the Plasma Dispersion Effect**, G. V. Treyz (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), P. G. May (Sharp Laboratories, Abingdon, Oxon, United Kingdom), and J. M. Halbout (IBM, Yorktown Heights, NY), *Applied Physics Letters* **59**, No. 7, 771–773 (1991).

**Characterization of Si/SiGe Strained-layer Superlattices Grown by Ultrahigh Vacuum/Chemical Vapor Deposition Technique**, P. J. Wang, M. S. Goorsky, B. S. Meyerson, F. K. LeGoues (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and M. J. Tejwani (IBM, Hopewell Junction, NY), *Applied Physics Letters* **59**, No. 7, 814–816 (1991).

**p-Type Doping of Germanium Grown by Molecular Beam Epitaxy on Ge(100) Substrates**, V. P. Kesan, S. S. Iyer, and J. M. Cotte (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 7, 852–854 (1991).

**Magnetic Ordering in  $\text{TBFe}_{1-x}$  Amorphous Films: An Application of X-Ray Dichroism with Linearly Polarized Light**, M. Sacchi (Université de Paris-Sud, F-91405 Orsay, France), R. J. H. Kappert, J. C. Fuggle (University of Nijmegen, Toernooiveld, NL-6525 Nijmegen, The Netherlands), and E. E. Marinero (IBM, San Jose, CA), *Applied Physics Letters* **59**, No. 7, 872–874 (1991).

**Electron Resonant Tunneling in Si/SiGe Double Barrier Diodes**, K. Ismail (Cairo University, Giza, Egypt), B. S. Meyerson, and P. J. Wang (IBM, Yorktown Heights, NY), *Applied Physics Letters* **59**, No. 8, 973–975 (1991).

**Evidence for Current-Density-Induced Heating of AlGaAs Single-Quantum-Well Laser Facets**, W. C. Tang, H. J. Rosen (IBM Corporation, 650 Harry Road, San Jose, CA 95120), P. Vettiger, and D. J. Webb (IBM, Rüschlikon, Switzerland), *Applied Physics Letters* **59**, No. 9, 1005–1007 (1991).

**Large Anisotropy in Optical Properties of Thin Polyimide Films of Poly(p-phenylene Biphenyltetracarboximide)s**, S. Herminghaus, D. Boese, D. Y. Yoon, and B. A. Smith (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Physics Letters* **59**, No. 9, 1043–1045 (1991).

**Morphology-Enhanced Metal-Alumina Adhesion by Depositing Textured Alumina Films on Textured Teflon Substrate**, C.-A. Chang, C.-J. Chan, and F. Jones (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 9, 1069–1071 (1991).

**Wet Etch Process for Patterning Insulators Suitable for Epitaxial High  $T_c$  Superconducting Thin Film Multilevel Electronic Circuits**, W. Eidelloth, W. J. Gallagher, R. P. Robertazzi, R. H. Koch, B. Oh, and R. L. Sandstrom (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 10, 1257–1259 (1991).

**Direct Imaging of the Fragments Produced During Excimer Laser Ablation of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$** , A. Gupta, B. Braren, K. G. Casey, B. W. Hussey, and R. Kelly (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 11, 1302–1304 (1991).

**Etched-Facet AlGaAs Triangular-Shaped Ring Lasers with Output Coupling**, A. Behfar-Rad (IBM Corporation, Route 52, Hopewell Junction, NY 12533), J. M. Ballanty (Cornell University, Ithaca, NY), and S. S. Wong (Stanford University, Stanford, CA), *Applied Physics Letters* **59**, No. 12, 1395–1397 (1991).

**Cu Passivation: A Method of Inhibiting Copper-Polyamic Acid Interactions**, D.-Y. Shih, J. Kim, G. F. Walker, C.-A. Chang, J. Paraszczak, S. Nunes, and C. Yang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 12, 1424-1426 (1991).

**Stress-Migration-Related Electromigration Damage Mechanism in Passivated, Narrow Interconnects**, C.-Y. Li, P. Borgesen (Cornell University, Ithaca, NY 14853), and T. D. Sullivan (IBM, Essex Junction, VT), *Applied Physics Letters* **59**, No. 12, 1464-1466 (1991).

**Selective Growth of Silicon-Germanium Alloys by Atmospheric-Pressure Chemical Vapor Deposition at Low Temperatures**, P. D. Agnello, T. O. Sedgwick, M. S. Goorsky, J. Ott, T. S. Kuan, and G. Scilla (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 12, 1479-1481 (1991).

**The Bulk Modulus of  $C_{60}$  Molecules and Crystals: A Molecular Mechanics Approach**, R. S. Ruoff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and A. L. Ruoff (Cornell University, Ithaca, NY), *Applied Physics Letters* **59**, No. 13, 1553-1555 (1991).

**Extremely High Electron Mobility in Si/Ge  $Si_{1-x}Ge_x$  Structures Grown by Molecular Beam Epitaxy**, Y. J. Mii, Y. H. Xie, E. A. Fitzgerald, D. Monroe, F. A. Thiel, B. E. Weir, and L. C. Feldman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 13, 1611-1613 (1991).

**Wet Etching of Gold Films Compatible with High  $T_c$  Superconducting Thin Films**, W. Eidelloth and R. L. Sandstrom (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 13, 1632-1634 (1991).

**Energy Level of the Nitrogen Dangling Bond in Amorphous Silicon Nitride**, W. L. Warren (Sandia National Laboratories, Albuquerque, NM 87185), J. Kanicki (IBM, Yorktown Heights, NY), J. Robertson (National Power Laboratories, Leatherhead, Surrey KT22 7SE, United Kingdom), and P. M. Lenahan (Pennsylvania State University, University Park, PA), *Applied Physics Letters* **59**, No. 14, 1699-1701 (1991).

**Image Potentials and the Dry Etching of Submicron Trenches with Low-Energy Ions**, R. J. Davis (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Physics Letters* **59**, No. 14, 1717-1719 (1991).

**Thermal Annealing of Light-Induced Metastable Defect in Hydrogenated Amorphous Silicon Nitride**, E. D. Tober (IBM Corporation, 650 Harry Road, San Jose, CA 95120), J. Kanicki (IBM, Yorktown Heights, NY), and M. S. Crowder (IBM, San Jose, CA), *Applied Physics Letters* **59**, No. 14, 1723-1725 (1991).

**Interpreting IR Difference Spectra**, D. B. Parry, M. G. Samant, and O. R. Melroy (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Spectroscopy* **45**, No. 6, 999-1007 (1991).

**Photoacoustic Depth Profiling of Polymer Laminates by Step-Scan Fourier Transform Infrared Spectroscopy**, R. M. Dittmar (Duke University, Durham, NC 27706), J. L. Chao (IBM, Yorktown Heights, NY), and R. A. Palmer (Duke University, Durham, NC), *Applied Spectroscopy* **45**, No. 7, 1104-1110 (1991).

**Characterization of (In,Ga)As/GaAs Strained-Layer Multiple Quantum Wells with High-Resolution X-Ray Diffraction and Computer Simulations**, R. Zaus, M. Schuster, H. Göbel (Siemens Ag, Otto-Hahn-Ring 6, D-8000 Munich 83, Federal Republic of Germany), and J.-P. Reithmaier (IBM, Rüschlikon, Switzerland), *Applied Surface Science* **50**, No. 1-4, 92-96 (1991).

**Donor-Acceptor Charge Transfers in Bulk Semi-insulating GaAs as Revealed by Photo-EPR**, T. Benchiguer (University of Louis Pasteur, BP 20, F-67037 Strasbourg Cedex, France), E. Christoffel (IBM, Corbeil-Essonnes, France), A. Goltzene, B. Mari, B. Meyer, and C. Schwab (University of Louis Pasteur, Strasbourg, France), *Applied Surface Science* **50**, No. 1-4, 277-280 (1991).

**Degradation of Perfluoropolyethers Catalyzed by Aluminum Oxide**, P. H. Kasai, W. T. Tang, and P. Wheeler (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Applied Surface Science* **51**, No. 3-4, 201-211 (1991).

**Metal-Induced States on the GaAs(110) Surface Probed by Angle-Resolved Photoemission Spectroscopy**, D. Heskett, D. Tang (University of Rhode Island, Kingston, RI 02881), A. B. McLean, R. Ludeke, M. Prietsch (IBM, Yorktown Heights, NY), T. M. Wong, E. W. Plummer (University of Pennsylvania, Philadelphia, PA), and N. J. DiNardo (Drexel University, Philadelphia, PA), *Applied Surface Science* **S48-49**, 260-263 (1991).

**Si-Ge Alloys: Growth, Properties and Applications**, M. Arienzo, S. S. Iyer, B. S. Meyerson, G. L. Patton, and J. M. C. Stork (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Applied Surface Science* **S48-49**, 377-386 (1991).

**Neutron Depolarization Study of a High- $T_c$  Epitaxial Thin Film**, S. J. Pickart, M. L. Crow, A. C. Nunes (University of Rhode Island, Kingston, RI 02881), T. R. McGuire, and A. Gupta (IBM, Yorktown Heights, NY), *Applied Surface Science* **S48-49**, 436-440 (1991).

**The Rejection of the Ricci Tensor in Einstein's First Tensorial Theory of Gravitation**, G. Maltese (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), *Archive for History of Exact Sciences* **41**, No. 4, 363-381 (1991).

**Proper Ventilation of Offices and Conference Rooms**, M. J. Filardo (IBM Corporation, Stamford, CT), *ASHRAE Journal* **33**, No. 9, 10+ (1991).

**Properties and Simulations of Interacting Spiral Galaxies with Transient Ocular Shapes**, D. M. Elmegreen (Vassar College, Poughkeepsie, NY 12601), M. Sundin (Chalmers University of Technology, Gothenburg, Sweden), B. Elmegreen (IBM, Yorktown Heights, NY), and B. Sundelius (Chalmers University of Technology, Gothenburg, Sweden), *Astronomy and Astrophysics* **244**, No. 1, 52-63 (1991).

**Qualitative Explanations of Red Giant Formation**, R. Bhaskar and A. Nigam (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Astrophysical Journal* **372**, No. 2, 592-596 (1991).

**Calculations Concerning the Reaction  $C + H + 3 \rightarrow CH^+ + H_2$** , D. Talbi (Molecular Research Institute, 845 Page Mill Road, Palo Alto, CA 94304), D. J. DeFrees (IBM, San Jose, CA), D. A. Egolf, and E. Herbst (Duke University, Durham, NC), *Astrophysical Journal* **374**, No. 1, 390-393 (1991).

**Flares Observed by the Normal Incidence X-Ray Telescope on 1989 September 11**, M. Herant, F. Pardo (Harvard Smithsonian Center of Astrophysics, 60 Garden Street, Cambridge, MA), E. Spiller (IBM, Yorktown Heights, NY), and L. Golub (Harvard Smithsonian Center of Astrophysics, Cambridge, MA), *Astrophysical Journal* **376**, No. 2, 797-802 (1991).

**Cloud Formation by Combined Instabilities in Galactic Gas Layers: Evidence for a  $Q$  Threshold in the Fragmentation of Shearing Wavelets**, B. G. Elmegreen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Astrophysical Journal* **378**, No. 1, 139-156 (1991).

## B

**If Human Cognition Is Adaptive, Can Human Knowledge Consist of Encodings?**, R. L. Campbell (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and M. H. Bickhard (Lehigh University, Bethlehem, PA), *Behavioral and Brain Sciences* **14**, No. 3, 488 (1991).

**Traversal Time in Tunneling**, R. Landauer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Berichte der Bunsengesellschaft für Physikalische Chemie* **95**, No. 3, 404-410 (1991).

**Heuristic Combinatorial Optimization by Simulated Darwinian Evolution: A Polynomial Time Algorithm for the Traveling Salesman Problem**, B. K. Ambati, J. Ambati (New York University, Brooklyn, NY 11203), and M. H. Mokhtar (IBM, Gaithersburg, MD), *Biological Cybernetics* **65**, No. 1, 31-35 (1991).

**Nonparametric Estimation of the Size-Metastasis Relationship in Solid Cancers**, M. Kimmel (Rice University, P.O. Box 1892, Houston, TX 77251) and B. J. Flehinger (IBM, Yorktown Heights, NY), *Biometrics* **47**, No. 3, 987-1004 (1991).

**Molecular Dynamics Simulation in Vacuo and in Solution of Cyclolinopeptide A: A Conformational Study**, M. Saviano, M. Aida, and G. Corongiu (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Biopolymers* **31**, No. 8, 1017-1024 (1991).

**Effects of Limited Input Distance Constraints Upon the Distance Geometry Algorithm**, C. M. Oshiro, J. Thomason, and I. D. Kuntz (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Biopolymers* **31**, No. 9, 1049-1064 (1991).

**Melasma: A Mask of Stress**, R. Wolf (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. Wolf, A. Tamir, and Y. Politi (Tel Aviv University, Tel Aviv, Israel), *British Journal of Dermatology* **125**, No. 2, 192-193 (1991).

**Geodesic Flows, Interval Maps, and Symbolic Dynamics**, R. Adler (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and L. Flatto (AT&T Bell Laboratories, Murray Hill, NJ), *Bulletin of the American Mathematical Society* **25**, No. 2, 229-334 (1991).

**Construction of a Thin Set with Small Fourier Coefficients**, M. Ajtai (IBM Corporation, 650 Harry Road, San Jose, CA 95120), H. Iwaniec (Rutgers State University, New Brunswick, NJ), J. Komlos (University of California, San Diego, CA), J. Pintz (Hungarian Academy of Science, Budapest, Hungary), and E. Szemerédi (Rutgers State University, New Brunswick, NJ), *Bulletin of the London Mathematical Society* **22**, 583-590 (1990).

## C

**Prospects of Quantum Functional Devices**, K. Ismail (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Canadian Journal of Physics* **69**, No. 3-4, 432-437 (1991).

**Ab Initio Study of  $C + H_2^+$  Reactions**, D. Talbi (Molecular Research Institute, 845 Page Mill Road, Palo Alto, CA 94304) and D. J. DeFrees (IBM, San Jose, CA), *Chemical Physics Letters* **179**, No. 1-2, 165-168 (1991).

**Vibrational Raman and Infrared Spectra of Chromatographically Separated C60 and C70 Fullerene Clusters**, D. S. Bethune, G. Meijer, W. C. Tang, H. J. Rosen, W. G. Golden, H. Seki, C. A. Brown, and M. S. DeVries (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Chemical Physics Letters* **179**, No. 1-2, 181-186 (1991).

**Time-Resolved Vibrational Spectroscopy of an Electric Field-Induced Transition in a Nematic Liquid Crystal by Use of Step-Scan Second FT-IR**, V. G. Gregoriou (Duke University, Durham, NC 27706), J. L. Chao (IBM, Yorktown Heights, NY), H. Toriumi (University of Tokyo, Tokyo, Japan), and R. A. Palmer (Duke University, Durham, NC), *Chemical Physics Letters* **179**, No. 5-6, 491-496 (1991).

**The TiP Double Bond in  $[CP, TiP(SiH_3)_2]$ : A Theoretical Investigation**, M. Ehrig (University of Karlsruhe, D-7500 Karlsruhe, Federal Republic of Germany), W. Koch (IBM Germany, Heidelberg, Federal Republic of Germany), and R. Ahlrichs (University of Karlsruhe, D-7500 Karlsruhe, Federal Republic of Germany), *Chemical Physics Letters* **180**, No. 1-2, 109-113 (1991).

**Theoretical Challenge to the X-ray Structure Determination of Dichloronitronium Ion (Inorganic Phosgene)  $Cl_2NO^+$** , M. Brumm, G. Frenking (Universität Marburg, Hans-Meerwein-Strasse, D-3550 Marburg, Federal Republic of Germany), and W. Koch (IBM Germany, Heidelberg, Federal Republic of Germany), *Chemical Physics Letters* **182**, No. 3-4, 310-314 (1991).

**Optical Absorption Spectra of Carbon 60 Thin Films from 0.4 to 6.2 eV**, A. Skumanich (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Chemical Physics Letters* **182**, No. 5, 486-490 (1991).

**Unfilled Orbitals of  $C_{60}$  and  $C_{70}$  from Carbon K-shell X-ray Absorption Fine Structure**, L. J. Terminello (University of California, Livermore, CA 94550), D. K. Shuh (University of California, Riverside, CA), F. J. Himpsel, D. A. Lapiano-Smith (IBM, Yorktown Heights, NY), J. Stohr, D. S. Bethune, and G. Meijer (IBM, San Jose, CA), *Chemical Physics Letters* **182**, No. 5, 491-496 (1991).

**Differential, Integral and Momentum Transfer Cross Sections for Electron Scattering with Germane ( $GeH_4$ ) Molecules at 1-100 eV**, A. Jain, K. L. Baluja (Florida A&M University, Tallahassee, FL 32307), V. Dimartino (IBM, Rome, Italy), and F. A. Gianturco (University of Rome, Rome, Italy), *Chemical Physics Letters* **183**, No. 1-2, 34-39 (1991).

**Observation of Anomalous Positive Correlation of Product Rotational and Vibrational Excitation in the  $H + CD_4$ ,  $HD(v, J') + CD_4$  Reaction**, G. J. Germann (IBM Corporation, 650 Harry Road, San Jose, CA 95120), Y. D. Huh, and J. J. Valentino (University of California, Irvine, CA), *Chemical Physics Letters* **183**, No. 5, 353-356 (1991).

**Observation and Characterization of Near UV Transients Formed in Disilane Photodissociation at 193 nm**, J. M. Jasinski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Chemical Physics Letters* **183**, No. 6, 558-564 (1991).

**Selected Topics in Ab Initio Computation Chemistry in Both Very Small and Very Large Chemical Systems**, E. Clementi (IGQEM del CNR, Via Risorgimento 35, 56100 Pisa, Italy), G. Corongiu, D. Bhattacharya, B. Feuston, D. Frye, A. Preiskorn, A. Rizzo, and W. Xue (IBM, Kingston, NY), *Chemical Reviews* **91**, No. 5, 679-699 (1991).

**Plasma-Developable Photoresist Systems Based on Chemical Amplification**, S. A. MacDonald, H. Schlossenberg, H. Ito, N. J. Clecak, and C. G. Willson (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Chemistry of Materials* **3**, No. 3, 435-442 (1991).

**Photoconductor Fatigue. 1. Photochemistry of Hydrazone-Based Hole-Transport Molecules in Organic Photoconductors: Spectroscopic Characterization and Effect on Electrical Properties**, J. Pacansky, R. J. Waltman, R. Grygier, and R. Cox (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Chemistry of Materials* **3**, No. 3, 454-462 (1991).

**Adverse Chemical Effects on the Plasma Deposited Amorphous Silicon Carbide Passivation Layer of Thermal Ink Jet Thin Film Heaters**, P. L. Gendler and L. S. Chang (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Chemistry of Materials* **3**, No. 4, 635-641 (1991).

**The Art of Marketing**, W. A. Levinson (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Chemtech* **21**, No. 5, 264-266 (1991).

**Does Class Inclusion Have Mathematical Prerequisites?**, R. L. Campbell (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Cognitive Development* **6**, No. 2, 169-194 (1991).

**Approximate Inclusion Exclusion**, N. Linial (University of California, Berkeley, CA) and N. Nisan (IBM, San Jose, CA), *Combinatorics* **10**, No. 4, 349-365 (1991).

**On Cascading Latin Hypercube Designs and Additive Models for Experiments**, M. S. Handcock (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Communications in Statistics, Theory and Methods* **20**, No. 2, 417-439 (1991).

**Extensions to Starburst: Objects, Types, Functions, and Rules**, G. M. Lohman, B. Lindsay, H. Pirahesh (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and K. B. Schiefer (IBM Canada, Toronto, Ontario), *Communications of the ACM* **34**, No. 10, 94-109 (1991).

**Building a Research Agenda**, B. Simons (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Communications of the ACM* **34**, No. 10, 122-125 (1991).

**HyTime: A Standard for Structured Hypermedia Interchange**, C. F. Goldfarb (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Computer* **24**, No. 8, 81-84 (1991).

**Four Decades of Service, 1951-1991**, M. G. Smith (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Computer* **24**, No. 9, 6-12 (1991).

**The Promise of the Next Decade**, J. H. Aylor (University of Virginia, Charlottesville, VA 22903), R. L. Russo (IBM, Yorktown Heights, NY), and B. D. Shriver (D. H. Brown Associates, Tarrytown, NY), *Computer* **24**, No. 9, 15-16 (1991).

**Computer Architecture in the 1990s**, H. S. Stone and J. Cocke (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Computer* **24**, No. 9, 30-38 (1991).

**The Future of Fiber-Optic Computer Networks**, P. E. Green (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Computer* **24**, No. 9, 78-87 (1991).

**What If Every Computer Failed Tomorrow?**, C. A. Pickover (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Computer* **24**, No. 9, 152 (1991).

**The Use of Adina F for Large Model Fluid Flow Analyses**, D. F. Lozupone and F. Piccolo (IBM Italy, Via Giorgione 159, I-00147 Rome, Italy), *Computer and Structures* **40**, No. 2, 511-520 (1991).

**Conversion Between ODA Level Two and RFT:DCA—Experiences with a Prototype**, W. Filip, J. Kämper, and W. Knobloch (IBM Germany, Tiergartenstrasse 8, D-6900 Heidelberg, Federal Republic of Germany), *Computer Networks and ISDN Networks* **21**, No. 3, 197-210 (1991).

**Analytic Hierarchy Process Based on Data Flow Diagram**, L. Wang (United Airlines, P.O. Box 66100, Chicago, IL 60666) and T. Raz (IBM, Roanoke, TX), *Computers & Industrial Engineering* **20**, No. 3, 355-365 (1991).

**Descartes Systems from Corner Cutting**, C. A. Micchelli and A. Pinkus (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Constructive Approximation* **7**, No. 2, 161-194 (1991).



**Investigation of the Conditions for Crack Propagation and Arrest Under Cathodic Polarization by Rising Step Load Bend Testing**, P. S. Tyler (IBM Corporation, Highway 52 & 37th Street NW, Rochester, MN 55901), M. Levy (Army Materials Technical Laboratory, Watertown, MA), and L. Raymond (LRA Laboratories Inc., Irvine, CA), *Corrosion* **47**, No. 2, 82–87 (1991).

## D

**Bisectors of Linearly Separable Sets**, L. R. Nackman and V. Srinivasan (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Discrete & Computational Geometry* **6**, No. 3, 263–275 (1991).

**Clock Synchronization and the Power of Broadcasting**, J. Y. Halpern (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and I. Suzuki (University of Wisconsin, Milwaukee, WI), *Distributed Computing* **5**, No. 2, 73–82 (1991).

## E

**On Cortical Folds and Neuromagnetic Fields**, L. Kaufman (New York University, 6 Washington Place, New York, NY 10003), J. H. Kaufman (IBM, San Jose, CA), and J. Z. Wang (New York University, New York, NY), *Electroencephalography and Clinical Neurophysiology* **79**, No. 3, 211–226 (1991).

**Vectorial Beam Propagation Method for Integrated Optics**, R. Clauberg and P. von Allmen (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Electronics Letters* **27**, No. 8, 654–655 (1991).

**450 mbit/s BPSK and One gbit/s QPSK Throughput Subcarrier Multiple Access Networks Using 790 nm Selfpulsating Laser Transmitter Network for Computer Applications**, R. J. S. Bates (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and S. D. Walker (University of Essex, Colchester, Essex, England), *Electronics Letters* **27**, No. 12, 1014–1016 (1991).

**Picosecond Pulses (2 PS) from Hybrid Mode Locked AlGaAs QW Lasers with Integrated Active Waveguide Cavities**, L. R. Brovelli and H. Jackel (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Electronics Letters* **27**, No. 12, 1104–1106 (1991).

**25 GHz FT/27 GHz  $F_{max}$  PnP Transistors for C Bipolar Technology**, S. Ratanaphanyarat, J. B. Kuang, S. F. Chu, W. Rausch, M. J. Saccamango, and M. Smadi (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Electronics Letters* **27**, No. 14, 1224–1225 (1991).

**Designing Mouldability**, V. Mumby (IBM Corporation, P.O. Box 6, Havant P09 1SA, Hants, England), *Engineering* **231**, No. 7, 19–21 (1991).

**Can One Always Lower Topological Entropy?**, M. Shub (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and B. Weiss (Hebrew University, Jerusalem, Israel), *Ergodic Theory and Dynamical Systems* **11**, Part 3, 535–546 (1991).

**Myopic and Stationary Solutions for Stochastic Cash Balance Problems**, M. J. Penttinen (IBM Finland, P.O. Box 265, 00101 Helsinki 10, Finland), *European Journal of Operational Research* **52**, No. 2, 155–166 (1991).

**Grain Boundary Structure: A Signature of Phasons in Incommensurate Smectics**, S. Ramaswamy (Indian Institute of Science, Bangalore 560012, India) and J. Toner (IBM, Yorktown Heights, NY), *Europhysics Letters* **15**, No. 2, 185–190 (1991).

**Thermal Variation of the Magnetoresistance of Soft-Spin Valve Multilayers**, B. Dieny, V. S. Speriosu, and S. Metin (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Europhysics Letters* **15**, No. 2, 227–232 (1991).

**Steady-State Noises in Diffusion-Limited Fractal Growth**, C. J. G. Evertsz (Yale University, Box 2155, Yale Station, New Haven, CT 06520) and B. B. Mandelbrot (IBM, Yorktown Heights, NY), *Europhysics Letters* **15**, No. 3, 245–250 (1991).

**Interchannel Scattering and Interior Contacts in the Quantum Hall Effect**, J. Faist (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Europhysics Letters* **15**, No. 3, 331–336 (1991).

**Conformation of Grafted Polystyrene Chains in a Melt**, X. Zhao, W. Zhao, M. H. Rafailovich, J. Sokolov (Queens College, Flushing, NY 11367), T. P. Russell (IBM, Yorktown Heights, NY), S. K. Kumar (Pennsylvania State University, University Park, PA), S. A. Schwarz, and B. J. Wilkens (Bellcore, Red Bank, NJ), *Europhysics Letters* **15**, No. 7, 725–730 (1991).

**Electronic Structure and Interlayer Exchange Coupling in Fe/Cr Superlattices**, K. Ounadjela (Université Louis Pasteur, 4 rue Blaise Pascal, 67070 Strasbourg, France), C. B. Sommers, A. D. Fert (Université Paris-Sud, Orsay, France), D. Stoeffler, F. Gautier (Université Louis Pasteur, Strasbourg, France), and V. L. Moruzzi (IBM, Yorktown Heights, NY), *Europhysics Letters* **15**, No. 8, 875–880 (1991).

**Ledge Fluctuations on Si(100) Stepped Surfaces**, T. W. Poon (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), F. F. Abraham (IBM, San Jose, CA), S. Yip (Massachusetts Institute of Technology, Cambridge, MA), and P. S. Ho (IBM, Yorktown Heights, NY), *Europhysics Letters* **16**, No. 3, 277–282 (1991).

## F

**Synthesis and Ferroelectric Properties of Liquid Crystals Derived from 4-Mercaptobenzoic Acid**, R. J. Twieg, K. Betterton, W. Hinsberg, P. Wong, W. Tang, and H. T. Nguyen (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Ferroelectrics* **114**, No. 1–4, 295–308 (1991).

**Pyroelectric Sensors for the Photothermal Analysis of Condensed Phases**, H. Coufal (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and A. Mandelis (University of Toronto, Toronto, Ontario, Canada), *Ferroelectrics* **118**, No. 1–4, 379–409 (1991).



**Edges, Contacts and the Quantized Hall Effect**, M. Büttiker (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Festkörperprobleme, Advances in Solid State Physics* **30**, 41-52 (1991).

## G

**Polydispersity Effects in Polymer Mixtures: Analysis of the Stability of the Critical Point**, G. Ronca (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Gazzetta Chimica Italiana* **121**, No. 4, 213-217 (1991).

**Set Systems with NO Union of Cardinality O Modulo M**, N. Alon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), D. Kleitman (Massachusetts Institute of Technology, Cambridge, MA), R. Lipton (Princeton University, Princeton, NJ), R. Meshulam (Hebrew University, Jerusalem, Israel), M. Rabin (Harvard University, Cambridge, MA), and J. Spencer (New York University, New York, NY), *Graphs and Combinatorics* **7**, No. 2, 97-99 (1991).

## I

**Client Server Systems in Manufacturing**, R. Orfali, D. Harkey, and K. Maki (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *I&CS, Control Technology for Engineers and Engineering Management* **64**, No. 9, 23-26 (1991).

**On the Origin of Broad Line Wings in Molecular Cloud Spectra**, B. G. Elmegreen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IAU Symposia*, No. 147, 205-209 (1991).

**High-Speed Parallel Viterbi Decoding: Algorithm and VLSI Architecture**, G. Fettweis (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and H. Meyr (Aachen University of Technology, Aachen, Federal Republic of Germany), *IEEE Communications Magazine* **29**, No. 5, 46-55 (1991).

**INTREPID: An Integrated Network Tool for Routing, Evaluation of Performance, and Interactive Design**, R. S. Cahn, P.-C. Chang, P. Kermani, and A. Kershenbaum (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Communications Magazine* **29**, No. 7, 40-47 (1991).

**Six Sigma: Moving Towards Perfect Products**, N. McEachron (SRI International, Menlo Park, CA 94025), A. Oppenheim, F. W. Breyfogle, and D. Gomez (IBM, Yorktown Heights, NY), *IEEE Design and Test of Computers* **8**, No. 2, 88-99 (1991).

**Novel InAs/(Al, Ga)Sb FET with Direct Gate-to-Channel Contact**, D. J. Frank, D. C. La Tulipe, Jr., and H. MuneKata (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Electron Device Letters* **12**, No. 5, 210-212 (1991).

**A Gate-Quality Dielectric System for SiGe Metal-Oxide-Semiconductor Devices**, S. S. Iyer, P. M. Solomon, V. P. Kesan, A. A. Bright, J. L. Freeouf, T. N. Nguyen, and A. C. Warren (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Electron Device Letters* **12**, No. 5, 246-248 (1991).

**Effect of Emitter Contact Materials on High Performance Vertical P-N-P Transistors**, S. Ratanaphanyarat, W. Rausch, M. Smadi, M. M. Saccamango, S. N. Mei, S. F. Chu, P. A. Ronsheim, and J. O. Chu (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *IEEE Electron Device Letters* **12**, No. 6, 261-263 (1991).

**Silicon Optical Modulators at 1.3  $\mu$ m Based on Free Carrier Absorption**, G. V. Treyz, P. G. May, and J. M. Halbout (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Electron Device Letters* **12**, No. 6, 276-278 (1991).

**High Performance Bipolar Technology for Improved ECL Power Delay**, J. Warnock, J. D. Cressler, K. A. Jenkins, C. Stanis, J. Y. C. Sun, D. D. Tang, E. Petrillo, and C. K. Hu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Electron Device Letters* **12**, No. 6, 315-317 (1991).

**High-Mobility Modulation-Doped Graded SiGe-Channel p-MOSFET's**, S. Verdonck-Vandbroek, E. F. Crabbé, B. S. Meyerson, D. L. Harame, P. J. Restle, J. M. C. Stork, A. C. Megdanis, C. L. Stanis, A. A. Bright, G. M. W. Kroesen, and A. C. Warren (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Electron Device Letters* **12**, No. 8, 447-449 (1991).

**1.3- $\mu$ m P-I-N Photodetector Using GaAs with As Precipitates (GaAs:As)**, A. C. Warren, J. H. Burroughes, J. M. Woodall, D. T. McInturff, R. T. Hodgson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and M. R. Melloch (Purdue University, West Lafayette, IN), *IEEE Electron Device Letters* **12**, No. 10, 527-529 (1991).

**High-Transconductance p-Channel AlGaAs/GaAs HFET's with Low-Energy Beryllium and Fluoride Co-Implantation Self-Alignment**, R. A. Kiehl (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), P. E. Hallali (IBM France, Corbeil-Essonnes, France), J. Yates, M. A. Trischler, R. M. Potemski, and F. Cardone (IBM, Yorktown Heights, NY), *IEEE Electron Device Letters* **12**, No. 10, 530-532 (1991).

**Controlling the Optical Properties of Intersecting Wave Guides: Fractionally Doping the Intersection Region**, D. M. Gill, L. McCaughan (University of Wisconsin, Madison, WI 53706), and N. Agrawal (IBM, San Jose, CA), *IEEE Journal of Quantum Electronics* **27**, No. 3, 588-592 (1991).

**Full-Wafer Technology—A New Approach to Large-Scale Laser Fabrication and Integration**, P. Vettiger (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), M. K. Benedict (IBM, Hopewell Junction, NY), G.-L. Bona, P. Buchmann (IBM, Rüschlikon, Switzerland), E. C. Cahoon (IBM, Hopewell Junction, NY), K. Dätwyler, H.-P. Dietrich, A. Moser, H. K. Seitz (IBM, Rüschlikon, Switzerland), O. Voegeli (IBM, San Jose, CA), D. J. Webb, and P. Wolf (IBM, Rüschlikon, Switzerland), *IEEE Journal of Quantum Electronics* **27**, No. 6, 1319-1331 (1991).

**Indium Migration and Controlled Lateral Bandgap Variations in High-Power Strained Layer InGaAs-AlGaAs Lasers Grown on Nonplanar Substrates**, L. R. Brovelli, D. J. Arent, H. Jaekel, and H. P. Meier (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *IEEE Journal of Quantum Electronics* **27**, No. 6, 1470-1475 (1991).

**Very High-Power (425 mW) AlGaAs SQW-GRIN SCH Ridge Laser with Frequency-Doubled Output (41 mW at 428 nm),** H. Jaekel, G. L. Bona, P. Buchmann, H. P. Meier, P. Vettiger (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), W. J. Kozlovsky, and W. Lenth (IBM, San Jose, CA), *IEEE Journal of Quantum Electronics* 27, No. 6, 1560-1567 (1991).

**Spontaneous Emission and Gain in GaAlAs Quantum Well Lasers,** M. P. Kesler and C. Harder (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *IEEE Journal of Quantum Electronics* 27, No. 6, 1812-1816 (1991).

**Mismatch Sensitivity of a Simultaneously Latched CMOS Sense Amplifier,** R. Sarpeshkar (California Institute of Technology, Pasadena, CA 91125), J. L. Wyatt, Jr. (Massachusetts Institute of Technology, Cambridge, MA), N. C. Lu, and P. D. Gerber (IBM, Yorktown Heights, NY), *IEEE Journal of Solid-State Circuits* 26, No. 10, 1413-1422 (1991).

**Hi-Speed On-Chip ECC for Synergistic Fault-Tolerant Memory Chips,** J. A. Fifield and C. H. Stapper (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *IEEE Journal of Solid-State Circuits* 26, No. 10, 1449-1452 (1991).

**IBM RISC System/6000: Architecture and Performance,** R. R. Oehler and M. W. Blasgen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Micro* 11, No. 3, 14-17 (1991).

**Real-Time Computing with IEEE Futurebus+,** L. Sha (Carnegie Mellon University, Pittsburgh, PA 15213), R. Rajkumar (IBM, Yorktown Heights, NY), and J. P. Lehoczky (Carnegie Mellon University, Pittsburgh, PA), *IEEE Micro* 11, No. 3, 30+ (1991).

**Monolithic Mode Locking of Long Cavity GaAs-AlGaAs Semiconductor Lasers,** P. G. May and M. Bierbaum (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Photonics Technology Letters* 3, No. 4, 296-298 (1991).

**Beam Properties of AlGaAs Power Lasers with High-Quality Etched Mirrors,** G. L. Bona, P. Buchmann, R. Clauser, H. Jaekel, P. Vettiger, O. Voegeli, and D. J. Webb (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *IEEE Photonics Technology Letters* 3, No. 5, 412-414 (1991).

**1.3  $\mu$ m InGaAs MSM Photodetector with Abrupt InGaAs/AlInAs Interface,** J. H. Burroughes (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and M. Hargis (Microelectronics Research Center, Atlanta, GA), *IEEE Photonics Technology Letters* 3, No. 6, 532-534 (1991).

**Doping Induced Bandwidth Enhancement in Metal-Semiconductor Metal-Photodetectors,** J. H. Burroughes (Toshiba Cambridge Research Center, Cambridge CB4 4WE, England), D. L. Rogers, G. Arjavalingam, G. D. Pettit, M. S. Goorsky (IBM, Yorktown Heights, NY), *IEEE Photonics Technology Letters* 3, No. 7, 657-659 (1991).

**H-MESFET Compatible GaAs/AlGaAs MSM Photodetector,** J. H. Burroughes (Toshiba Cambridge Research Center, Cambridge CB4 4WE, England), *IEEE Photonics Technology Letters* 3, No. 7, 660-662 (1991).

**Backside Optical Measurements of Picosecond Internal Gate Delays in a Flip-Chip Packaged Silicon VLSI Circuit,** H. K. Heinrich, N. Pakdaman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. S. Kent, and L. M. Cropp (IBM, Hopewell Junction, NY), *IEEE Photonics Technology Letters* 3, No. 7, 673-675 (1991).

**Interactive Visual Modeling for Performance,** C. A. Funkalea (AT&T Bell Laboratories, Holmdel, NJ 07733), T. D. Kontogiorgos (Nomura Research Institute, Tokyo, Japan), R. J. T. Morris (IBM, San Jose, CA), and L. D. Rubin (Nomura Research Institute, Tokyo, Japan), *IEEE Software* 8, No. 5, 58-68 (1991).

**FPLUS: A Programming Environment for Scientific Applications,** W. Cunto, J. Araujo, F. Giovannetti, and J. Rivero (IBM Venezuela, AP 64778, Caracas, Venezuela), *IEEE Software* 8, No. 5, 81-92 (1991).

**Walkthroughs: Efficient Collaborative Testing,** R. Bias (IBM Corporation, Austin, TX 78758), *IEEE Software* 8, No. 5, 94-95 (1991).

**Performance Analysis of Two-Phase Locking,** A. Thomasia (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and I. K. Ryu (Digital Equipment Corporation, Mountain View, CA), *IEEE Transactions on Software Engineering* 17, No. 5, 386-402 (1991).

**Experimental Verification of the 2-D Rooftop Approach for Modeling Microstrip Patch Antennas,** R. A. York, R. C. Compton (Cornell University, Ithaca, NY 14853), and B. J. Rubin (IBM, Yorktown Heights, NY), *IEEE Transactions on Antennas and Propagation* 39, No. 5, 690-694 (1991).

**A Unified Approach to Partitioning and Placement,** R.-S. Tsay (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and E. Kuh (University of California, Berkeley, CA), *IEEE Transactions on Circuits and Systems* 38, No. 5, 521-533 (1991).

**Neural Networks for Fast Arbitration and Switching Noise Reduction in Large Crossbars,** J. Ghosh (University of Texas, Austin, TX 78712), A. Hukkoo (Intel Corporation, Santa Clara, CA), and A. Varma (IBM, Yorktown Heights, NY), *IEEE Transactions on Circuits and Systems* 38, No. 8, 895-904 (1991).

**Relaxation Simulation of Transverse Electromagnetic Wave Propagation in Coupled Transmission Lines,** F.-Y. Chang (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *IEEE Transactions on Circuits and Systems* 38, No. 8, 916-936 (1991).

**Mentor: An Algorithm for Mesh Network Topological Optimization and Routing,** A. Kershenbaum (Polytechnic University, Brooklyn, NY 11201), P. Kermani, and G. A. Grover (IBM, Yorktown Heights, NY), *IEEE Transactions on Communications* 39, No. 4, 503-513 (1991).

**Incremental Time-Slot Assignment in SS/TDMA Satellite Systems,** M. A. Bonuccelli (Università di Pisa, 56100 Pisa, Italy), I. Gopal, and C. K. Wong (IBM, Yorktown Heights, NY), *IEEE Transactions on Communications* 39, No. 7, 1147-1156 (1991).

**Electronic Packaging in the 1990s—A Perspective from America**, R. R. Tummala (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *IEEE Transactions on Components, Hybrids and Manufacturing Technology* 14, No. 2, 262–271 (1991).

**Technology Development: Focus on Manufacturability**, F. J. Anastaio and D. J. Miller (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *IEEE Transactions on Components, Hybrids and Manufacturing Technology* 14, No. 3, 488–492 (1991).

**Global Flow Optimization in Automatic Logic Design**, C. L. Berman and L. H. Trevillyan (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 10, No. 5, 557–564 (1991).

**Two-Dimensional Process Simulation Using Verified Phenomenological Models**, R. B. Fair (Microelectronics Center of North Carolina, Research Triangle Park, NC 27709), C. L. Gardner (Duke University, Durham, NC), M. J. Johnson (IBM, Lexington, KY), S. W. Kenkel (Microelectronics Center of North Carolina, Research Triangle Park, NC), D. J. Rose (Duke University, Durham, NC), J. E. Rose, and R. Subrahmanyam (Microelectronics Center of North Carolina, Research Triangle Park, NC), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 10, No. 5, 643–651 (1991).

**Piecewise Approximate Circuit Simulation**, C. Visweswariah (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and R. A. Rohrer (Carnegie Mellon University, Pittsburgh, PA), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 10, No. 7, 861–870 (1991).

**Massively Parallel Switch-Level Simulation: A Feasibility Study**, S. A. Kravitz (IBM Israel, IL-32000 Haifa, Israel), R. E. Bryant, and R. A. Rutenbar (Carnegie Mellon University, Pittsburgh, PA), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 10, No. 7, 871–894 (1991).

**Design of Robustly Testable Combinational Logic Circuits**, S. Kundu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), S. M. Reddy (University of Iowa, Iowa City, IA), and N. K. Jha (Princeton University, Princeton, NJ), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 10, No. 8, 1036–1048 (1991).

**Circuit Width, Register Allocation, and Ordered Binary Decision Diagrams**, C. L. Berman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* 10, No. 8, 1059–1066 (1991).

**A Performance Study of the ISO Transport Protocol**, B. W. Meister (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *IEEE Transactions on Computers* 40, No. 3, 253–262 (1991).

**A Special Function Unit for Database Operations (SFU-DB): Design and Performance Evaluation**, H. Lam (University of Florida, Gainesville, FL 32611), C. Lee (IBM, Kingston, NY), and S. Y. W. Su (University of Florida, Gainesville, FL), *IEEE Transactions on Computers* 40, No. 3, 263–275 (1991).

**Generalization of Min-Cut Partitioning to Tree Structures and Its Applications**, G. Vijayan (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Computers* 40, No. 3, 307–314 (1991).

**Synthesizing a Protocol Converter from Executable Protocol Traces**, M. Rajagopal (IBM Corporation, Lexington, KY 40503) and R. E. Miller (University of Maryland, College Park, MD), *IEEE Transactions on Computers* 40, No. 4, 487–499 (1991).

**The LO Language and Environment for Protocol Simulation and Prototyping**, E. J. Cameron (Bellcore, Morristown, NJ 07960), D. M. Cohen, T. M. Guinther, W. M. Keese, L. A. Ness, C. Norman, and H. N. Srinidhi (IBM, Yorktown Heights, NY), *IEEE Transactions on Computers* 40, No. 4, 562–571 (1991).

**Micro Time Cost Analysis of Parallel Computations**, B. Qin (IBM Canada, Toronto, Ontario, Canada), H. A. Sholl, and R. A. Ammar (University of Connecticut, Storrs, CT), *IEEE Transactions on Computers* 40, No. 5, 613–628 (1991).

**A Real-Time Locking Protocol**, L. Sha (Carnegie Mellon University, Pittsburgh, PA 15213), R. Rajkumar (IBM, Yorktown Heights, NY), S. H. Son (University of Virginia, Charlottesville, VA), and C.-H. Chang (Kon-Kuk University, Seoul, Korea), *IEEE Transactions on Computers* 40, No. 7, 793–800 (1991).

**Asynchronous Disk Interleaving: Approximating Access Delays**, M. Y. Kim and A. N. Tantawi (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Computers* 40, No. 7, 801–810 (1991).

**A Hybrid Number System Processor with Geometric and Complex Arithmetic Capabilities**, F.-S. Lai and C.-F. E. Wu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Computers* 40, No. 8, 952–962 (1991).

**A New Asymmetrical Halo Source GOLD Drain (HS-Gold) Deep Sub-Half-Micrometer n-MOSFET Design for Reliability and Performance**, T. N. Buti, S. Ogura, N. Rovedo (IBM Corporation, Route 52, Hopewell Junction, NY 12533), and K. Tobimatsu (IBM, Shiga-ken, Japan), *IEEE Transactions on Electron Devices* 38, No. 8, 1757–1764 (1991).

**Effective Acceptor Profiles in Chemically and Plasma Treated WN/GaAs Shannon Contacts from Capacitance and Current Measurements**, P. E. Bagnoli (Università di Pisa, 56100 Pisa, Italy), A. Paccagnella (Università di Padova, Padova, Italy), and A. Callegari (IBM, Yorktown Heights, NY), *IEEE Transactions on Electron Devices* 38, No. 8, 1962–1964 (1991).

**Demonstration of the Importance of the Oxide Breakup in Polysilicon-Contacted-Emitter Modeling**, J. L. Egle (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and J. L. Gray (Purdue University, West Lafayette, IN), *IEEE Transactions on Electron Devices* 38, No. 9, 2112–2117 (1991).

**Junction Breakdown Instabilities in Deep Trench Isolation Structures**, Y. L. Tsang and J. M. Aitken (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *IEEE Transactions on Electron Devices* 38, No. 9, 2134–2138 (1991).

**Miniature Electron-Optical Columns**, T. H. P. Chang, D. P. Kern, and L. P. Muray (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Electron Devices* 38, No. 10, 2284–2288 (1991).

**A Fabrication Method for the Integration of Vacuum Microelectronic Devices**, S. M. Zimmerman and W. T. Babie (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *IEEE Transactions on Electron Devices* 38, No. 10, 2294–2303 (1991).

**Cooperative Scheduling and Its Application to Steelmaking Processes**, M. Numao and S. Morishita (IBM Japan, Tokyo, Japan), *IEEE Transactions on Industrial Electronics* 38, No. 2, 150–155 (1991).

**Multilevel Error Control Codes for Data Storage Channels**, K. A. S. Abdelghaffar (University of California, Davis, CA 95616) and M. Hassner (IBM, San Jose, CA), *IEEE Transactions on Information Theory* 37, No. 3, Part 2, 735–741 (1991).

**Bounds on the Number of States in Encoder Graphs for Input Constrained Channels**, B. H. Marcus and R. M. Roth (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Information Theory* 37, No. 3, Part 2, 742–758 (1991).

**Variable Length State Splitting with Applications to Average Runlength Constrained (ARC) Codes**, C. D. Heegard (Cornell University, Ithaca, NY 14853), B. H. Marcus, and P. H. Siegel (IBM, San Jose, CA), *IEEE Transactions on Information Theory* 37, No. 3, Part 2, 759–777 (1991).

**Matched Spectral Null Codes for Partial Response Channels**, R. Karabed and P. H. Siegel (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Information Theory* 37, No. 3, Part 2, 818–854 (1991).

**On the Shannon Capacity of DG-Free and Nyquist-Free Codes**, L. J. Fredrickson (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *IEEE Transactions on Information Theory* 37, No. 3, Part 2, 918–923 (1991).

**Combining EXX with Modulation Performance Comparisons**, M. Blaum (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *IEEE Transactions on Information Theory* 37, No. 3, Part 2, 945–949 (1991).

**The Gleason-Prange Theorem**, R. E. Blahut (IBM Corporation, Owego, NY 13827), *IEEE Transactions on Information Theory* 37, No. 5, 1269–1273 (1991).

**On Codes Satisfying Mth-Order Running Digital Sum Constraints**, E. Eleftheriou and R. D. Cideciyan (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *IEEE Transactions on Information Theory* 37, No. 5, 1294–1313 (1991).

**Construction of Some Binary Linear Codes of Minimum Distance Five**, C. L. Chen (IBM Corporation, Boardman Road, Poughkeepsie, NY 12602), *IEEE Transactions on Information Theory* 37, No. 5, 1429–1432 (1991).

**Corroborating Cutoff Frequency Measurements with DC Gain Measurements**, K. A. Jenkins (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *IEEE Transactions on Instrumentation and Measurement* 40, No. 3, 642–644 (1991).

**Equilibrium Characterization of Dynamic Neural Networks and a Systematic Synthesis Procedure for Associative Memories**, S. I. Sudharsanan (IBM Corporation, Boca Raton, FL 33429) and M. K. Sundareshan (University of Arizona, Tucson, AZ), *IEEE Transactions on Neural Networks* 2, No. 5, 509–521 (1991).

**Ion Kinetics in Low-Pressure, Electropositive, RF Glow Discharge Sheaths**, M. S. Barnes, J. C. Forster, and J. H. Keller (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *IEEE Transactions on Plasma Science* 19, No. 2, 240–244 (1991).

**Adjusting Step Length for Rough Terrain Locomotion**, J. K. Hodgins (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and M. H. Raibert (Massachusetts Institute of Technology, Cambridge, MA), *IEEE Transactions on Robotics and Automation* 7, No. 3, 289–298 (1991).

**A Six-Degree of Freedom Magnetically Levitated Variable Compliance Fine-Motion Wrist: Design, Modeling, and Control**, R. L. Hollis (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), S. E. Salcudean (University of British Columbia, Vancouver, British Columbia, Canada), and A. P. Allan (E. I. du Pont de Nemours and Company, Waynesboro, VA), *IEEE Transactions on Robotics and Automation* 7, No. 3, 320–332 (1991).

**Modeling Optical Equipment for Wafer Alignment and Line-width Measurement**, C.-M. Yuan (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and A. J. Strojwas (Carnegie Mellon University, Pittsburgh, PA), *IEEE Transactions on Semiconductor Manufacturing* 4, No. 2, 99–110 (1991).

**TLM: A Trench Leakage Monitor for a Four Megabit SPT DRAM Technology**, S. H. Voldman and C. W. Long (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *IEEE Transactions on Semiconductor Manufacturing* 4, No. 3, 226–232 (1991).

**An Information Retrieval Approach for Automatically Constructing Software Libraries**, Y. S. Maarek (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. M. Berry (Technion, Haifa, Israel), and G. E. Kaiser (Columbia University, New York, NY), *IEEE Transactions on Software Engineering* 17, No. 8, 800–813 (1991).

**Strong Minkowski Decomposition Is Np-Complete**, K. Iwano (IBM Japan, Tokyo 102, Japan), *IEICE Transactions on Communications, Electronics, Information, and Systems* 74, No. 4, 653–656 (1991).

**Approximate Algorithms for the Knapsack Problem on Parallel Computers**, P. S. Gopalakrishnan (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), I. V. Ramakrishnan (State University of New York, Stony Brook, NY), and L. N. Kanal (University of Maryland, College Park, MD), *Information and Computation* 91, No. 2, 155-171 (1991).

**Simultaneity Is Harder than Agreement**, B. A. Coan (Bellcore, 445 South Street, Morristown, NJ 07960) and C. Dwork (IBM, San Jose, CA), *Information and Computation* 91, No. 2, 205-231 (1991).

**Non-Well-Founded Sets Modeled as Ideal Fixed Points**, M. W. Mislove (Tulane University, New Orleans, LA 70118), L. S. Moss, and F. J. Oles (IBM, Yorktown Heights, NY), *Information and Computation* 93, No. 1, 16-54 (1991).

**Context Based Spelling Correction**, E. Mays, F. J. Damerau, and R. L. Mercer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Information Processing and Management* 27, No. 5, 517-522 (1991).

**High Resolution Shadowing and Coating for Biological Transmission Electron Microscopy (TEM) and Scanning Tunneling Microscopy (STM)**, H. Gross (Swiss Federal Institute of Technology, CH-8093 Zurich, Switzerland), M. Amrein, H. Winkler, and G. Travaglini (IBM, Rüschlikon, Switzerland), *Institute of Physics Conference Series*, No. 93, 35-36 (1988).

**Coherent Electron Beam Emitted from Point Sources by Field Emission**, N. Garcia, L. Escapa, J. J. Saenz (Universidad Autónoma Madrid, C-III, E-28049 Madrid, Spain), and H. Rohrer (IBM, Rüschlikon, Switzerland), *Institute of Physics Conference Series*, No. 93, 107 (1988).

**Fine Structure in Electron Energy Loss Scattering**, P. E. Batson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 93, 137-142 (1988).

**A Fast Algorithm for the Computer Processing of Periodical Structures**, J. P. Secilla (IBM Corporation, Paseo Castellana 4, E-28046 Madrid, Spain) and J. L. Carrascosa (Universidad Autónoma, Madrid, Spain), *Institute of Physics Conference Series*, No. 93, 365-366 (1988).

**A Common Three-Dimensional Structure for the Connector of Unrelated Viruses**, J. Carrascosa, L. Donate, L. Herranz (Universidad Autónoma, E-28049 Madrid, Spain), J. Secilla (IBM, Madrid, Spain), and H. Fujisawa (Kyoto University, Kyoto, Japan), *Institute of Physics Conference Series*, No. 93, 391-392 (1988).

**The DX Center in GaAs and Al<sub>1-x</sub>Ga<sub>x</sub>As**, T. N. Theis (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 95, 307-314 (1989).

**Studies of the DX Center in Heavily Doped N<sup>+</sup> GaAs**, L. Eaves, T. J. Foster (University of Nottingham, Nottingham NG7 2RD, England), D. K. Maude, J. C. Portal, R. Murray, R. C. Newman, L. Dmowski, R. B. Beall (National Institute of Applied Science, Toulouse, France), J. J. Harris (Philips Research Laboratories, Surrey, England), M. I. Nathan, and M. Heiblum (IBM, Yorktown Heights, NY), *Institute of Physics Conference Series*, No. 95, 315-324 (1989).

**Hydrogen Diffusion and Passivation of Shallow Impurities in Crystalline Silicon**, C. G. van de Walle, P. J. Denteneer, Y. Bar-Yam, and S. T. Pantelides (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 95, 405-414 (1989).

**Diffusion of Shallow Impurities in Silicon**, P. Fahey (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 95, 483-492 (1989).

**Diffusion of Shallow Impurities in Silicon**, C. S. Nichols, C. G. van de Walle, and S. T. Pantelides (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 95, 493-498 (1989).

**Interband Auger Recombination in Silicon**, D. B. Laks, G. F. Neumark, A. Hangleiter (Columbia University, New York, NY 10027), and S. T. Pantelides (IBM, Yorktown Heights, NY), *Institute of Physics Conference Series*, No. 95, 515-520 (1989).

**Interfaces and the Microstructure of Thin Films**, D. A. Smith (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 98, 157-162 (1990).

**Theoretical Study of the Scanning Tunneling Microscope**, T. Laloyaux, A. A. Lucas, J. P. Vigneron, P. Lambin (Université Notre Dame de la Paix, 61 Rue Bruxelles, B-5000 Namur, Belgium), and H. Morawitz (IBM, San Jose, CA), *Institute of Physics Conference Series*, No. 99, 145-148 (1989).

**An STM Controlled Field Emission Microlens Electron Source**, M. A. McCord, T. H. P. Chang, D. P. Kern, and J. L. Speidell (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 99, 165-166 (1989).

**Developments in TEM Techniques for the Characterization of Semiconductor Superlattices and Heterostructures**, W. M. Stobbs, C. S. Baxter, E. G. Bithell, C. B. Boothroyd (University of Cambridge, Pembroke Street, Cambridge CB2 3QZ, England), R. F. Broom (IBM, Rüschlikon, Switzerland), F. M. Ross, and E. J. Williams (University of Cambridge, Cambridge, England), *Institute of Physics Conference Series*, No. 100, 271-280 (1989).

**Electron Microscopy Study of GaInAs PINP and GaInAsP INP Multilayer Heterostructures**, R. Spycher, P. A. Buffat, P. A. Stadelmann (École Polytechnique Fédérale Lausanne, 12M EPFL, CH-1015 Lausanne, Switzerland), P. Roentgen, W. Heuberger, and V. Graf (IBM, Rüschlikon, Switzerland), *Institute of Physics Conference Series*, No. 100, 299-304 (1989).

**Recent Developments in the Preparation of Semiconductor Device Materials for the Transmission Electron Microscope**, R. Anderson, S. Klepeis, J. Benedict, W. G. Vandygrift, and M. Orndorff (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Institute of Physics Conference Series*, No. 100, 491-500 (1989).

**Phase Formation in the Co/Si System**, J. L. Batstone (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), A. C. Daykin (University of Liverpool, Liverpool, England), J. M. Phillips, and J. C. Hensel (AT&T Bell Laboratories, Murray Hill, NJ), *Institute of Physics Conference Series*, No. 100, 641-646 (1989).

**Dislocation Emission from Crack Tips and the Macroscopic Brittle to Ductile Transition**, D. R. Clarke and R. F. Cook (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Institute of Physics Conference Series*, No. 104, 397-407 (1989).

**Minimum Fault Covering in Reconfigurable Arrays**, N. Hasan (IBM Corporation, Boardman Road, Poughkeepsie, NY 12602) and C. L. Liu (University of Illinois, Urbana, IL), *Integration* 11, No. 3, 215-234 (1991).

**Planar Topological Routing of Pad Nets**, J. N. Ho (Academia Sinica, Taipei, Taiwan), G. Vijayan, and C. K. Wong (IBM, Yorktown Heights, NY), *Integration* 11, No. 3, 295-316 (1991).

**Productivity of Venezuelan Scientific Research on Physics Measured on the Basis of Science Citation Index (SCI) 1979-1988**, J. Davila (University of Los Andes, Meridan, Venezuela), C. Mendoza (IBM Venezuela, Caracas, Venezuela), and L. A. Nunez (University of Los Andes, Meridan, Venezuela), *Interiencia* 16, No. 4, 182-186 (1991).

**A Comparison of Preconditioned Iterative Techniques Using Rapid Operator Application Against Direct Solution Methods**, S. Foresti (University of Utah, Salt Lake City, UT 84112), S. Hassanzadeh, H. Murakami, and V. Sonnad (IBM, Kingston, NY), *International Journal for Numerical Methods in Engineering* 32, No. 5, 1137-1144 (1991).

**Machinable Volumes Extraction: Non-Block Type Raw Material Input**, R. K. Li (National Chiao Tung University, Hsinchu, Taiwan) and S. D. Tzieng (IBM, Taipei, Taiwan), *International Journal of Computer Integrated Manufacturing* 4, No. 4, 241-252 (1991).

**Architecture and VLSI Module Generator for Expressing Digital Signals in Decibels**, O. G. Koufopavlou (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. E. Metafas, and C. E. Goutis (University of Patras, Patras, Greece), *International Journal of Electrical Power and Energy Systems* 71, No. 2, 297-307 (1991).

**Natural Convection Arising From a Heat Generating Substrate Mounted Protrusion in a Liquid Filled Two-Dimensional Enclosure**, S. B. Sathe (IBM Corporation, 1701 North Street, Endicott, NY 13760) and Y. Johsi (Naval Postgraduate School, Monterey, CA), *International Journal of Heat and Mass Transfer* 34, No. 8, 2149-2163 (1991).

**The Relationship Between Bivariate Volterra Analysis and Power Series Analysis with Application to the Behavioral Modeling of Microwave Circuits**, P. J. Lunsford (IBM Corporation, P.O. Box 12195, Research Triangle Park, NC 27709) and M. B. Steer (North Carolina State University, Raleigh, NC), *International Journal of Microwave and Millimeterwave Computer-Aided E* 1, No. 3, 253-262 (1991).

**Towards a Consistent Four-Dimensional Superstring I.**, J. W. Durachta (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *International Journal of Modern Physics A* 6, No. 23, 4133-4147 (1991).

**Anyon Superconductivity and the Fractional Quantum Hall Effect**, D. H. Lee (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *International Journal of Modern Physics B* 5, No. 10, 1695-1713 (1991).

**Information Theoretic Measures of Inspection Performance**, T. Raz (IBM Corporation, 5 West Kirkwood Boulevard, Roanoke, TX 76299), *International Journal of Production Research* 29, No. 5, 913-926 (1991).

**Location and Sequencing of Imperfect Inspection Operations in Serial Multistage Production Systems**, T. Raz and M. Kaspi (IBM Corporation, 5 West Kirkwood Boulevard, Roanoke, TX 76299), *International Journal of Production Research* 29, No. 8, 1645-1659 (1991).

**Erratum: Dirac Fock Self-Consistent Field Method for Closed-Shell Molecules with Kinetic Balance and Finite Nuclear Size**, A. Mohanty and E. Clementi (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *International Journal of Quantum Chemistry* 40, No. 3, 429-432 (1991).

**The Organizational Impact of Integrating Multiple Tools**, M. P. Papazoglou (Australian National University, Canberra, Act 26001, Australia), L. Marinos (Erasmus University, Rotterdam, The Netherlands), and N. G. Bourbakis (IBM, Yorktown Heights, NY), *International Journal of Software Engineering and Knowledge Engineering* 1, No. 2, 165-188 (1991).

## J

**Electro-Optics of a Twisted Nematic Liquid Crystal Display by  $2 \times 2$  Propagation Matrix at Oblique Angle**, H. L. Ong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Japanese Journal of Applied Physics* 2 30, No. 6A, 1028-1031 (1991).

**On Computer Simulations for Spin Glasses to Test Mean Field Predictions**, S. Caracciolo (Scuola Normale Superiore and INFN, Sezione di Pisa, Piazza Cavalieri, Pisa 56100, Italy), G. Parisi (Università di Roma II, Rome, Italy), S. Patarnello (IBM Italy, Rome, Italy), and N. Sourlas (Institute for Advanced Study, Princeton, NJ), *Journal de Physique I* 1, No. 5, 627-628 (1991).

**Adhesion of Polyimides to Ceramics: Effects of Aminopropyltriethoxysilane and Temperature and Humidity Exposure on Adhesion**, L. P. Buchwalter, T. S. Oh (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and J. Kim (Korea Advanced Institute of Science and Technology, Seoul, South Korea), *Journal of Adhesion Science and Technology* 5, No. 4, 333-343 (1991).

**Adhesion of Polyimide to Fluoride Contaminated  $\text{SiO}_2$  Surface Effect of Aminopropyltriethoxysilane on the Adhesion**, L. P. Buchwalter (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and R. H. Lacombe (IBM, Hopewell Junction, NY), *Journal of Adhesion Science and Technology* 5, No. 6, 449-457 (1991).

**Hydrothermal Stability of Cr/Polyimide Interfaces**, D. G. Kim (ETRI, Daejeon, Korea), S. E. Molis (IBM, Yorktown Heights, NY), T. S. Oh (KIST, Seoul, Korea), S. P. Kowalczyk, and J. Kim (IBM, Yorktown Heights, NY), *Journal of Adhesion Science and Technology* 5, No. 7, 509-521 (1991).

**Thermodynamics of Polymer-Paper Adhesion: A Review**, J. Borch (IBM Corporation, P.O. Box 1900, Boulder, CO 80301), *Journal of Adhesion Science and Technology* 5, No. 7, 523-541 (1991).

**Better Computing on the Anonymous Ring**, H. Attiya (Massachusetts Institute of Technology, Cambridge, MA 02139) and M. Snir (IBM, Yorktown Heights, NY), *Journal of Algorithms* 12, No. 2, 204-238 (1991).

**On-line Dynamic Programming with Applications to the Prediction of RNA Secondary Structure**, L. L. Larmore (University of California, Riverside, CA 92521) and B. Schieber (IBM, Yorktown Heights, NY), *Journal of Algorithms* 12, No. 3, 490-515 (1991).

**How to Play Bowling in Parallel on the Grid**, J. Bruck (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and V. P. Roychowdhury (Stanford University, Stanford, CA), *Journal of Algorithms* 12, No. 3, 516-529 (1991).

**Electromagnetically Generated Acoustic Determination of Delamination**, W. Imaino (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* 69, No. 7, 3811-3815 (1991).

**Thermally Stimulated Current Studies of Bismuth Germanium Oxide Crystal**, T. Takamori and D. Just (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 69, No. 7, 3958-3961 (1991).

**Magneto-optical Kerr Effect and Perpendicular Magnetic Anisotropy of Evaporated and Sputtered Co/Pt Multilayer Structures**, P. He, W. A. McGahan, J. A. Woollan (University of Nebraska, Lincoln, NE 68588), F. Sequeda, T. McDaniel, and H. Do (IBM, San Jose, CA), *Journal of Applied Physics* 69, No. 7, 4021-4028 (1991).

**Determination of the Coherence Length in High-Mobility Semiconductor-Coupled Josephson Weak Links**, A. W. Kleinsasser (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 69, No. 7, 4146-4148 (1991).

**Interaction of Metal Particles for Magnetic Recording with Media Formulation Components**, C. Jung, S. Raghavan (University of Arizona, Tucson, AZ 85721), and M. C. A. Mathur (IBM, Tucson, AZ), *Journal of Applied Physics* 69, No. 8, 4481-4483 (1991).

**Magnetic and Transport Properties of Sputtered GdY Multilayers**, P. P. Freitas (INESC, R. Alves Redol 9-3, 1000 Lisbon, Portugal), M. From (CFMC/INIC, Lisbon, Portugal), L. V. Melo (INESC, Lisbon, Portugal), and T. S. Plaskett (IBM, Yorktown Heights, NY), *Journal of Applied Physics* 69, No. 8, 4532-4534 (1991).

**Optical and Magneto-Optical Characterization of TbFeCo Thin Films in Trilayer Structures**, W. A. McGahan, P. He, L.-Y. Chen, S. Bonafede, J. A. Woollan (University of Nebraska, Lincoln, NE 68588), F. Sequeda, T. McDaniel, and H. Do (IBM, San Jose, CA), *Journal of Applied Physics* 69, No. 8, 4568-4570 (1991).

**Dynamics of Magnetic Domains and Walls**, J. C. Slonczewski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 69, No. 8, 4590-4592 (1991).

**Measurements of the Anomalous Magnetoresistance Effect in Co/Pt and Co/Pd Multilayer Films for Magneto-Optical Data Storage Applications**, R. A. Hajjar, M. Mansuripur (University of Arizona, Tucson, AZ 85721), and H.-P. D. Shieh (IBM, Yorktown Heights, NY), *Journal of Applied Physics* 69, No. 8, 4686-4688 (1991).

**Side Writing/Reading in Magnetic Recording**, T. C. Arnoldussen, L. L. Nunnelley (IBM Corporation, 650 Harry Road, San Jose, CA 95120), F. J. Martin, and R. P. Ferrier (University of Glasgow, Glasgow, Scotland), *Journal of Applied Physics* 69, No. 8, 4718-4720 (1991).

**Beyond Discrete Tracks: Other Aspects of Patterned Media**, S. E. Lambert, I. L. Sanders, A. M. Patlach, M. T. Krounbi, and S. R. Hetzler (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* 69, No. 8, 4724-4726 (1991).

**A Magnetic Evaluation of Interaction and Noise Characteristics of Conic Thin Films**, P. I. Mayo, K. O'Grady, P. E. Kelly, J. Cambridge (University College of North Wales, Bangor LL57 2UW, Gwynedd, United Kingdom), I. L. Sanders, T. Yogi (IBM, San Jose, CA), and R. W. Chantrell (University of Keele, Keele, Staffordshire, United Kingdom), *Journal of Applied Physics* 69, No. 8, 4733-4735 (1991).

**Giant Magneto-Optic Rotation in Amorphous Uranium Antimonide**, R. J. Gambino, T. S. Plaskett, T. R. McGuire, and M. W. McElfresh (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* 69, No. 8, 4750-4755 (1991).

**Magnetic and Magneto-Optic Properties of Rapid Thermally Crystallized Garnet Films**, T. Suzuki (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* 69, No. 8, 4756-4760 (1991).

**Triple-Layered NdCo Amorphous-Alloy Films for Magneto-Optical Media**, H. Iiyori and S. Takayama (IBM Japan Ltd., 5-11, Sanbancho, Chiyoda-ku, Tokyo 102, Japan), *Journal of Applied Physics* 69, No. 8, 4761-4763 (1991).

**Magnetotransport Properties of Magnetically Soft Spin-Valve Structure**, B. Dieny, V. S. Speriosu, S. Metin, S. S. P. Parkin, B. A. Gurney, P. Baumgart, and D. R. Wilhoit (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* 69, No. 8, 4774-4779 (1991).



**Spin-Polarized Band Structure of Magnetically Coupled Multilayers**, F. Herman, J. Sticht (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and M. Van Schilfgaarde (SRI International, Menlo Park, CA), *Journal of Applied Physics* **69**, No. 8, 4783-4785 (1991).

**The Role of Spin-Dependent Impurity Scattering in Fe/Cr Giant Magnetoresistance Multilayers**, P. Baumgart, B. A. Gurney, D. R. Wilhoit, T. Nguyen, B. Dieny, and V. S. Speriosu (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **69**, No. 8, 4792-4794 (1991).

**Magnetic Phase Transitions in  $\text{UNi}_2\text{Si}_2$** , L. Rebersky (Brookhaven National Laboratories, Upton, NY 11973), H. Lin, M. F. Collins, J. B. Garrett (McMaster University, Hamilton, Ontario, Canada), W. J. L. Buyers (AECL, Chalk River, Ontario, Canada), M. W. McElfresh (IBM, Yorktown Heights, NY), and M. S. Torikachvili (San Diego State University, San Diego, CA), *Journal of Applied Physics* **69**, No. 8, 4807-4809 (1991).

**Magnetic and Structural Phase Transitions in  $\text{UAu}_2\text{Si}_2$** , L. Rebersky (Brookhaven National Laboratories, Upton, NY 11973), M. W. McElfresh (IBM, Yorktown Heights, NY), M. S. Torikachvili (San Diego State University, San Diego, CA), B. M. Powell (AECL, Chalk River, Ontario, Canada), and M. B. Maple (University of California, La Jolla, CA), *Journal of Applied Physics* **69**, No. 8, 4810-4812 (1991).

**Thin-Film Recording Media: Challenges for Physics and Magnetism in the 1990s**, K. E. Johnson (IBM Corporation, Rochester, MN 55901), *Journal of Applied Physics* **69**, No. 8, 4932-4937 (1991).

**Time Resolved Thermomagnetic Recording Process in  $\text{GdTbFeCo}$  Films**, H.-P. D. Shieh (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **69**, No. 8, 4951-4953 (1991).

**Magnetization Stability in the Magneto-Optical Readout of  $\text{TbFeCo}$  Disks**, T. W. McDaniel and B. I. Finkelstein (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *Journal of Applied Physics* **69**, No. 8, 4954-4956 (1991).

**Peak Shift Analysis for Magneto-Optical Storage**, M. R. Madison, B. I. Finkelstein, and R. Yardy (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *Journal of Applied Physics* **69**, No. 8, 4957-4959 (1991).

**Magnetic Properties of  $\text{CoPtCr}$  Thin Films with  $\langle 11\bar{2}0 \rangle$  Crystal Orientation**, M. Mirzamaani, C. V. Jahnes, and M. A. Russak (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **69**, No. 8, 5169-5171 (1991).

**Magnetism of Ultrathin Films of Fe on  $\text{Cu}(100)$** , D. P. Pappas, K.-P. Kämper, B. P. Miller, H. Hopster (University of California, Irvine, CA 92717), D. E. Fowler, A. C. Luntz, C. R. Brundle (IBM, San Jose, CA), and Z. X. Shen (Stanford University, Stanford, CA), *Journal of Applied Physics* **69**, No. 8, 5209-5211 (1991).

**Hysteresis in Lithographic Arrays of Permalloy Particles: Experiment and Theory**, J. F. Smyth, S. Schultz, D. R. Fredkin (University of California, La Jolla, CA 92093), D. P. Kern, S. A. Rishton, H. Schmid, M. Cali (IBM, Yorktown Heights, NY), and T. R. Koehler (IBM, San Jose, CA), *Journal of Applied Physics* **69**, No. 8, 5262-5266 (1991).

**Magnetization Reversal in Permalloy Particles: Micromagnetic Computations**, D. R. Fredkin (University of California, La Jolla, CA 92093), T. R. Koehler (IBM, San Jose, CA), J. F. Smyth, and S. Schultz (University of California, La Jolla, CA), *Journal of Applied Physics* **69**, No. 8, 5276-5278 (1991).

**Ternary  $\text{NiFeX}$  as Soft Biasing Film in a Magnetoresistive Sensor**, M.-M. Chen, N. Gharsallah, G. L. Gorman, and J. Latimer (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **69**, No. 8, 5631-5633 (1991).

**$\text{MnFe}$  Structure-Exchange Anisotropy Relation in the  $\text{NiFe/MnFe/NiFe}$  System**, K. T.-Y. Kung, L. K. Louie, and G. L. Gorman (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **69**, No. 8, 5634-5636 (1991).

**Magnetic Anisotropy and Structural Characterization of  $\text{Co/Pt}$  Superlattices Grown Along Selected Orientations by Molecular-Beam Epitaxy**, B. D. Hermsmeier, R. F. C. Farrow, C. H. Lee, E. E. Marinero, C. J. Lin, R. F. Marks (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and C. J. Chien (Stanford University, Stanford, CA), *Journal of Applied Physics* **69**, No. 8, 5646-5648 (1991).

**Pt Layer Thickness Dependence of Magnetic Properties in  $\text{Co/Pt}$  Multilayers**, Z. Zhang, P. E. Wigen (Ohio State University, Columbus, OH 43210), and S. S. P. Parkin (IBM, San Jose, CA), *Journal of Applied Physics* **69**, No. 8, 5649-5651 (1991).

**Magnetic Force Microscopy with Batch-Fabricated Force Sensors**, P. Grütter, D. Rugar, H. J. Mamin, G. Castillo, C.-J. Lin, I. R. McFadyen, R. M. Valletta (IBM Corporation, 650 Harry Road, San Jose, CA 95120), O. Wolter, T. Bayer, and J. Greschner (IBM Germany, Sindelfingen, Federal Republic of Germany), *Journal of Applied Physics* **69**, No. 8, 5883-5885 (1991).

**Some Properties of  $2\pi$  Néel Walls and Néel Points in the  $XY$  Model**, B. Dieny and B. A. Jones (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **69**, No. 8, 5959-5961 (1991).

**Spin Separation in Diluted Magnetic Semiconductor Quantum Well Systems**, B. T. Jonker (Naval Research Laboratory, Washington, DC 20375), X. Liu, W. C. Chou, A. Petrou (State University of New York, Buffalo, NY), J. Warnock (IBM, Yorktown Heights, NY), J. J. Krebs, and G. A. Prinz (Naval Research Laboratory, Washington, DC), *Journal of Applied Physics* **69**, No. 8, 6097-6102 (1991).

**New III-V Diluted Magnetic Semiconductors**, H. Ohno, H. Munekata, S. von Molnár, and L. L. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **69**, No. 8, 6103-6108 (1991).

**A Low Energy Limit to Boron Channeling in Silicon**, R. F. Lever (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and K. W. Brannon (IBM, Palo Alto, CA), *Journal of Applied Physics* **69**, No. 9, 6369–6372 (1991).

**Investigations of Microstructure of Thin TbFeCo Films by High-Resolution Electron Microscopy**, Z. G. Li, D. J. Smith (Arizona State University, Tempe, AZ 85287), E. E. Marinero, and J. A. Willett (IBM, San Jose, CA), *Journal of Applied Physics* **69**, No. 9, 6590–6594 (1991).

**Secondary Ion Mass Spectrometry Study of the Thermal Stability of Cu/Refractory Metal/Si Structures**, L. C. Lane (IBM Corporation, Route 52, Hopewell Junction, NY 12533), T. C. Nason, G.-R. Yang, T.-M. Lu (Rensselaer Polytechnic Institute, Troy, NY), and H. Bakhru (State University of New York, Albany, NY), *Journal of Applied Physics* **69**, No. 9, 6719–6721 (1991).

**Electrostatic Charging in Two Insulating Powders**, L. B. Schein, M. LaHa (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and G. Marshall (IBM, Boulder, CO), *Journal of Applied Physics* **69**, No. 10, 6817–6826 (1991).

**Measurements of Magnetoresistance in Magneto-Optical Recording Media**, R. A. Hajjar, M. Mansuripur (University of Arizona, Tucson, AZ 85721), and H. P. D. Shieh (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **69**, No. 10, 7067–7080 (1991).

**Imaging High-Temperature Superconducting Films**, E. Batalla, E. G. Zwart, L. S. Wright (Royal Military College, Kingston K7K 5L0, Ontario, Canada), S. I. Raider, and A. Gupta (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **69**, No. 10, 7178–7180 (1991).

**Observation of Anomalous Resistive Transition Around 160–200 K in  $\text{YBa}_2\text{Cu}_3\text{O}_x$  Thin Films**, Q. Y. Ma (Columbia University, New York, NY 10027), C.-A. Chang (IBM, Yorktown Heights, NY), and E. S. Yang (Columbia University, New York, NY), *Journal of Applied Physics* **69**, No. 10, 7348–7350 (1991).

**On the Switching Characteristics of Co and CoPtCr Thin Films**, J. Heidmann, T. A. Nguyen, T. Yogi, S. E. Lambert, and V. S. Speriosu (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **69**, No. 11, 7731–7734 (1991).

**Misfit Dislocations and Critical Thickness of Heteroepitaxy**, S. M. Hu (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Applied Physics* **69**, No. 11, 7901–7903 (1991).

**Hydrogen Redistribution and Gettering in AlCu/Ti Thin Films**, A. D. Marwick, J. C. Liu, and K. P. Rodbell (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **69**, No. 11, 7921–7923 (1991).

**Second Order Nonlinear Optical Properties and Relaxation Characteristics of Poled Linear Epoxy Polymers with Toluene Chromophores**, D. Jungbauer, I. Teraoka, D. Y. Yoon, B. Reck, J. D. Swalen, R. Twieg, and C. G. Willson (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **69**, No. 12, 8011–8017 (1991).

**Thermally Stimulated Current Studies of Sillenite-Type Oxide Crystals: Retrapping Kinetics and Identity of Trapped Carriers**, T. Takamori (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **69**, No. 12, 8222–8226 (1991).

**Influence of Thickness and Conductivity of Alignment Layers on the Bistability of Ferroelectric Liquid Crystal Devices**, T. C. Chieu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **69**, No. 12, 8399–8401 (1991).

**Solutions to Current Crowding in Circular Vias for Contact Resistance Measurements**, L. H. Allen, M. Y. Zhang (University of Illinois, 1101 West Springfield Street, Urbana, IL 61801), J. W. Mayer (Cornell University, Ithaca, NY), E. G. Colgan, and R. Young (IBM, Hopewell Junction, NY), *Journal of Applied Physics* **70**, No. 1, 253–258 (1991).

**Structural Identification of the Silicon and Nitrogen Dangling-Bond Centers in Amorphous Silicon Nitride**, W. L. Warren, F. C. Rong, E. H. Poindexter, G. J. Gerardi (Electronics Technology and Devices Laboratory, Fort Monmouth, NJ 07703), and J. Kanicki (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **70**, No. 1, 346–354 (1991).

**The Role of the Ion-Solid Interaction in Ion-Beam-Induced Deposition of Gold**, A. D. Dubner, A. Wagner (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), J. Melngailis, and C. V. Thompson (Massachusetts Institute of Technology, Cambridge, MA), *Journal of Applied Physics* **70**, No. 2, 665–673 (1991).

**Interdiffusion, Hardness, and Resistivity of Cr/Cu/Co/Au Thin Films**, P. Madakson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 3, 1374–1379 (1991).

**Correlation Between Resistivity and Diffusion in Thin Films**, P. Madakson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 3, 1380–1384 (1991).

**The Thermal Stability of SiGe Films Deposited by Ultrahigh-Vacuum Chemical Vapor Deposition**, S. R. Stiffler, J. H. Comfort, C. L. Stanis, D. L. Hareme, E. de Frésart, and B. S. Meyerson, *Journal of Applied Physics* **70**, No. 3, 1416–1420 (1991).

**Trapping and Trap Creation Studies on Nitrided and Reoxidized-Nitride Silicon Dioxide Films on Silicon**, D. J. DiMaria and J. H. Stathis, *Journal of Applied Physics* **70**, No. 3, 1500–1509 (1991).

**Moderate Temperature Anneal on 7 nm Thermal  $\text{SiO}_2$  in  $\text{O}_2$  Free and  $\text{H}_2\text{O}$  Free Atmosphere Effects on  $\text{Si/SiO}_2$  Interface Trap Distribution**, L. Dori (CNR, Institute Laeml, Via Castagnoli 1, I-40126 Bologna, Italy), J. H. Stathis, and J. A. Tornello (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **70**, No. 3, 1510–1516 (1991).

**Stained Quantum Well Valance-Band Structure and Optimal Parameters for AlGaAs-InGaAs-AlGaAs p-Channel Field-Effect Transistor**, B. Laikhtman (Weizmann Institute of Science, Rehovot 76100, Israel), R. A. Kiehl, and D. J. Frank (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **70**, No. 3, 1531-1538 (1991).

**Low Hydrogen Content Stoichiometric Silicon Nitride Films Deposited by Plasma-Enhanced Chemical Vapor Deposition**, G. N. Parsons, J. H. Souk, and J. Batey (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 3, 1553-1560 (1991).

**Temperature Dependence of Carrier Density in Depleted Epitaxial Layers Deposited on Semi-Insulating Substrates**, K. Weiser (Technion, 32 000 Haifa, Israel), P. M. Solomon, S. L. Wright, and B. Parker (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **70**, No. 3, 1565-1569 (1991).

**Vapor Deposition Processes for Amorphous Carbon Films with  $sp^3$  Fractions Approaching Diamond**, J. J. Cuomo, D. L. Pappas, J. Bruley, J. P. Doyle, and K. L. Saenger (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 3, 1706-1711 (1991).

**Revealing Process-Induced Strain Fields in GaAs/AlGaAs Lasers Via Electron Irradiation in a Scanning Electron Microscope**, A. Jakubowicz (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Journal of Applied Physics* **70**, No. 3, 1800-1805 (1991).

**The Dependence of Stiction and Friction on Roughness in Thin-Film Magnetic Recording Disks**, V. Raman, W. T. Tang, D. Jen, and T. R. Reith (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *Journal of Applied Physics* **70**, No. 3, 1826-1836 (1991).

**Role of Atomic Mass of Underlayer Material in the Transition Noise of Longitudinal Media**, T. Yogi, T. Nguyen, S. E. Lambert, G. L. Gorman, M. A. Kakalec, and G. Castillo (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Applied Physics* **70**, No. 3, 1837-1840 (1991).

**Measurement of Nematic Liquid Crystal Splay and Bend Elastic Constants with Obliquely Incident Light**, H. L. Ong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 4, 2023-2030 (1991).

**Electrically Neutral Nitrogen Dangling-Bond Defects in Amorphous Hydrogenated Silicon Nitride Thin Films**, W. L. Warren (Sandia National Laboratory, Albuquerque, NM 87185), P. M. Lenahan (Pennsylvania State University, University Park, PA), and J. Kanicki (IBM, Yorktown Heights, NY), *Journal of Applied Physics* **70**, No. 4, 2220-2225 (1991).

**Stability of C49 and C54 Phases in TiSi<sub>2</sub> Under Ion Bombardment**, S. Motakef, J. M. E. Harper, F. M. d'Heurle, T. A. Gallo (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and N. Herbot (Massachusetts Institute of Technology, Cambridge, MA), *Journal of Applied Physics* **70**, No. 5, 2660-2666 (1991).

**Oxidation and Protection in Copper and Copper Alloy Thin Films**, J. Li, J. W. Mayer (Cornell University, Ithaca, NY 14853), and E. G. Colgan (IBM, Hopewell Junction, NY), *Journal of Applied Physics* **70**, No. 5, 2820-2827 (1991).

**Demagnetization Factors for General Ellipsoids**, D. C. Cronemeyer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 6, 2911-2914 (1991).

**Thin-Film Interdiffusions in Cu/Pd, Cu/Pt, Cu/Ni, Cu/NiB, Cu/Co, Cu/Cr, and Cu/TiN Bilayer Films: Correlations of Sheet Resistance with Rutherford Backscattering Spectrometries**, D.-Y. Shih, C.-A. Chang, J. Paraszczak, S. Nunes, and J. Cataldo (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 6, 3052-3060 (1991).

**Electrical Transport in Thin Films of Copper Silicide**, M. O. Aboelfotoh and L. Krusin-Elbaum (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Applied Physics* **70**, No. 6, 3382-3384 (1991).

**Stress-Related Problems in Silicon Technology**, S. M. Hu (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Applied Physics* **70**, No. 6, R53-R80 (1991).

**Simple Model for Swelling-Induced Stresses in a Supported Polymer Thin Film**, T. Z. Fu, C. J. Durning (Columbia University, New York, NY 10027), and H. M. Tong (IBM, Yorktown Heights, NY), *Journal of Applied Polymer Science* **43**, No. 4, 709-721 (1991).

**Etch Rate Studies of Base Catalyzed Hydrolysis of Polyimide Film. II.**, W. P. Pawlowski (IBM Corporation, 1701 North Street, Endicott, NY 13760), D. D. Coolbaugh (IBM, Austin, TX), and C. J. Johnson (IBM, Endicott, NY), *Journal of Applied Polymer Science* **43**, No. 7, 1379-1383 (1991).

**Sojourn Times in Vacation and Polling Systems with Bernoulli Feedback**, T. Takine (Kyoto University, Kyoto 606, Japan), H. Takagi (IBM Japan, Tokyo, Japan), and T. Hasegawa (Kyoto University, Kyoto, Japan), *Journal of Applied Probability* **28**, No. 2, 422-432 (1991).

**Interactions of Asparagine Linked Carbohydrates with Concanavalin-A: Nuclear Magnetic Relaxation Dispersion and Circular Dichroism Studies**, L. Bhattacharyya, S. H. Koenig, R. D. Brown (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and C. F. Brewer (Yeshiva University of Albert Einstein, 1300 Morris Park Avenue, Bronx, NY), *Journal of Biological Chemistry* **266**, No. 15, 9835-9840 (1991).

**TEM Immunogold Staining of C<sub>3</sub> From Plasma onto Titanium Oxides**, M. E. McAlarney (Columbia University, New York, NY 10032), R. Skalak (University of California, San Diego, CA), S. Kim, D. Neugroschl (IBM, Yorktown Heights, NY), and E. S. Machlin (Columbia University, New York, NY), *Journal of Biomedical Materials Research* **25**, No. 7, 845-864 (1991).

**Theory of End-Adsorbed Polymer Brushes in Polymeric Matrices**, K. R. Shull (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **94**, No. 8, 5723-5738 (1991).

**Gaussian Functions in Hylleraas-Configuration-Interaction Calculations. VI. The First Excited State of  $H_3^+$** , A. Preiskorn, D. Frye, and E. Clementi (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Chemical Physics* **94**, No. 11, 7204-7207 (1991).

**Dynamics of Recombinative Desorption: Angular Distributions of  $H_2$ , HO, and  $D_2$  Desorbing from Cu(111)**, C. T. Rettner, H. A. Michelsen, D. J. Auerbach, and C. B. Mullins (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **94**, No. 11, 7499-7501 (1991).

**A Critical Examination of Data on the Dissociative Adsorption and Associative Desorption of Hydrogen at Copper Surfaces**, H. A. Michelsen and D. J. Auerbach (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **94**, No. 11, 7502-7520 (1991).

**Calculations on the Rate of the Ion-Molecule Reaction Between  $NH_3^+$  and  $H_2$** , E. Herbst (Duke University, Durham, NC 27706), D. J. Defrees, D. Talbi, F. Pauzat (IBM, Yorktown Heights, NY), W. Koch, and A. D. McLean (IBM, San Jose, CA), *Journal of Chemical Physics* **94**, No. 12, Part I, 7842-7849 (1991).

**The Energy Separation Between the Classical and Nonclassical Isomers of Protonated Acetylene. An Extensive Study in One- and  $n$ -Particle Space Saturation**, R. Lindh, J. E. Rice (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and T. J. Lee (NASA, Moffett Field, CA), *Journal of Chemical Physics* **94**, No. 12, Part I, 8008-8014 (1991).

**Structural and Electronic Properties of Sodium Microclusters ( $N = 2-20$ ) at Low and High Temperatures: New Insights from *Ab Initio* Molecular Dynamics Studies**, U. R  thlisberger (University of Bern, CH-3000 Bern 9, Switzerland) and W. Andreoni (IBM, R  schlikon, Switzerland), *Journal of Chemical Physics* **94**, No. 12, Part I, 8129-8151 (1991).

**Molecular Conformation and Disjoining Pressure of Polymeric Liquid Films**, C. M. Mate and V. J. Novotny (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **94**, No. 12, Part II, 8420-8427 (1991).

**Raman Spectroscopic Investigation of the Structure of Silicate Glasses. IV. Alkali-Silico-Germanate Glasses**, T. Furukawa and W. B. White (IBM Corporation, P.O. Box A, Essex Junction, VT 05452), *Journal of Chemical Physics* **95**, No. 2, 776-784 (1991).

**Selected Versus Complete Configuration Interaction Expansions**, F. Illas (IBM Corporation, 650 Harry Road, San Jose, CA 95120), J. Rubio (Universitat de Barcelona, Barcelona, Spain), J. M. Ricart, and P. S. Bagus (Universidad de Barcelona, Tarragona, Spain), and P. S. Bagus (IBM, San Jose, CA), *Journal of Chemical Physics* **95**, No. 3, 1877-1883 (1991).

**The Effect of Pressure-Induced Conformational Changes on the Longitudinal Acoustic Mode in Perfluoro- $n$ -Alkanes**, K. Song, V. M. Hallmark, and J. F. Rabolt (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **95**, No. 4, 2862-2866 (1991).

**The Formation of Large Polyaromatic Hydrocarbons Via Carbon Cluster Ion Reactions**, J. A. Zimmerman and W. R. Creasy (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Chemical Physics* **95**, No. 5, 3267-3274 (1991).

**Long-Range Poisoning of  $D_2$  Dissociative Chemisorption on Pt(111) by Coadsorbed K**, J. K. Brown, A. C. Luntz (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and P. A. Schultz (Sandia National Laboratory, Albuquerque, NM), *Journal of Chemical Physics* **95**, No. 5, 3767-3774 (1991).

***Ab Initio* Self-Consistent-Field Molecular Orbital Calculations on Defects Associated with Radiation Damage in Alpha Quartz**, F. Sim (University College of London, 20 Gordon Street, London WC1 0AJ, England), C. R. A. Catlow (University of Keele, Staffordshire, United Kingdom), M. Dupuis, and J. D. Watts (IBM, Kingston, NY), *Journal of Chemical Physics* **95**, No. 6, 4215-4224 (1991).

**Gaussian Density Functional Calculations on Allyl and Polyene Radicals:  $C_3H_5$  to  $C_{11}H_{13}$** , F. Sim, D. R. Salahub (University of Montreal, CP 6128, Succu A, Montreal H3C 3J7, Quebec, Canada), S. Chin, and M. Dupuis (IBM, Kingston, NY), *Journal of Chemical Physics* **95**, No. 6, 4317-4326 (1991).

**Bonding Geometry and Bonding Character of Thiocyanate Adsorbed on a Ag(100) Surface**, G. Pacchioni, F. Illas, M. R. Philpott, and M. R. Bagus (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **95**, No. 6, 4678-4684 (1991).

**Computer Simulations of  $n$ -Alkane Melts**, R. G. Winkler, P. J. Ludovice, D. Y. Yoon, and H. Morawitz (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Chemical Physics* **95**, No. 6, 4709-4714 (1991).

**Direct Kinetic Studies of  $SiH_3 + SiH_4$ ,  $H$ ,  $CCl_4$ ,  $SiD_4$ ,  $Si_2H_6$ , and  $C_3H_8$  by Tunable Infrared Diode Laser Spectroscopy**, S. K. Loh and J. M. Jasinski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Chemical Physics* **95**, No. 7, 4914-4926 (1991).

**A Theoretical Study of  $Na(H_2O)^+$  ( $n = 1-4$ )**, C. W. Bauschlicher, S. R. Langhoff, H. Partridge (NASA, Moffett Field, CA 94035), J. E. Rice (IBM, San Jose, CA), and A. Komornicki (Polyatomics Research Institute, Mountain View, CA), *Journal of Chemical Physics* **95**, No. 7, 5142-5148 (1991).

**Application of Ion Chromatography to Failure Analysis of Electronics Packaging**, M. Plat and J. Deleo (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Chromatography* **546**, No. 1-2, 347-350 (1991).

**Application of Time/Temperature Superposition Techniques to Powder Coating Cure**, C. M. Neag (Glidden Coatings & Resins, 16651 Sprague Road, Strongsville, OH 44136) and R. B. Prime (IBM, San Jose, CA), *Journal of Coatings Technology* **63**, No. 797, 37-45 (1991).

**Wetting Autophobicity**, V. J. Novotny (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and A. Marmur (Technion, Haifa, Israel), *Journal of Colloid and Interface Science* **145**, No. 2, 355-361 (1991).

**Additive Bases of Vector Spaces Over Prime Fields**, N. Alon (Tel Aviv University, IL-69978 Tel Aviv, Israel), N. Linial (IBM, San Jose, CA), and R. Meshulam (Massachusetts Institute of Technology, Cambridge, MA), *Journal of Combinatorial Theory A* **57**, No. 2, 203–210 (1991).

**Multicolored Forests in Bipartite Decompositions of Graphs**, N. Alon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), R. A. Brualdi, and B. L. Shader (University of Wisconsin, Madison, WI), *Journal of Combinatorial Theory B* **53**, No. 1, 143–148 (1991).

**The Hylleraas-CI Method in Molecular Calculations. III. Implementation and Numerical Verification of a Three-Electron Many-Center Theory**, D. Frye, A. Preiskorn, and E. Clementi (IBM Corporation, Neighborhood Road, Kingston, NY 12401), *Journal of Computational Chemistry* **12**, No. 5, 560–565 (1991).

**Vectorization of the General Monte Carlo Classical Trajectory Program Venus**, X. Hu, W. L. Hase (Wayne State University, Detroit, MI 48202), and T. Pirraglia (IBM, Kingston, NY), *Journal of Computational Chemistry* **12**, No. 8, 1014–1024 (1991).

**Finite Element Applications on a Shared Memory Multiprocessor. Algorithms and Experimental Results**, R. Natarajan (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Computational Physics* **94**, No. 2, 352–381 (1991).

**Sturm-Liouville Systems with Potentials  $0.5 \cos 2\pi x$** , M. Kobayashi (IBM Japan, 5-19 Sanbancho, Chiyoda-ku, Tokyo 102, Japan), *Journal of Computational Physics* **94**, No. 2, 487–493 (1991).

**A Lower Bound for Radio Broadcast**, N. Alon (Tel Aviv University, 69978 Tel Aviv, Israel), A. Bar-Noy (Stanford University, Stanford, CA), N. Linial (IBM, San Jose, CA), and D. Peleg (Stanford University, Stanford, CA), *Journal of Computer and System Science* **43**, No. 2, 290–298 (1991).

**GaAs Buffer Layers Grown at Low Substrate Temperatures Using As<sub>2</sub> and the Formation of Arsenic Precipitates**, M. R. Melloch, K. Mahalingam, N. Otsuka (Purdue University, West Lafayette, IN 47907), J. M. Woodall, and A. C. Warren (IBM, Yorktown Heights, NY), *Journal of Crystal Growth* **111**, No. 1–4, 39–42 (1991).

**Indium Desorption During MBE Growth of Strained InGaAs Layers**, J.-P. Reithmaier (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), H. Riechert, H. Schlotterer (Siemens Research Laboratories, München, Federal Republic of Germany), and G. Weimann (Walter Schottky Institut, Technische Universität, Garching, Federal Republic of Germany), *Journal of Crystal Growth* **111**, No. 1–4, 407–412 (1991).

**Use of CCl<sub>4</sub> and CHCl<sub>3</sub> in Gas Source Molecular Beam Epitaxy for Carbon Doping of GaAs and GaIn<sub>1-x</sub>P**, T. J. de Lyon, N. I. Buchan, P. D. Kirchner, J. M. Woodall, D. T. McInturff, G. J. Scilla, and F. Cardone (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Crystal Growth* **111**, No. 1–4, 564–569 (1991).

**Dopant Incorporation in Epitaxial Germanium Grown on Ge(100) Substrates by MBE**, V. P. Kesan, S. S. Iyer, and J. M. Cotte (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Crystal Growth* **111**, No. 1–4, 847–855 (1991).

**Simulation with Animation: Microscopic Grown Kinetics of Si(001) Homoepitaxy**, M. R. Wilby (Imperial College of Science and Technology, London SW7 2BZ, United Kingdom), M. W. Ricketts (IBM United Kingdom, London, United Kingdom), S. Clarke, and D. D. Vudensky (Imperial College of Science and Technology, London, United Kingdom), *Journal of Crystal Growth* **111**, No. 1–4, 864–869 (1991).

**Si/SiGe Heterostructures Grown on SOI Substrates by MBE for Integrated Optoelectronics**, V. P. Kesan, P. G. May, F. K. Le Goues, and S. S. Iyer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Crystal Growth* **111**, No. 1–4, 936–942 (1991).

**Control of Misoriented Grains and Pinholes in CoSi<sub>2</sub> Grown on Si(001)**, L. J. Schowalter, J. R. Jimenez, L. M. Hsiung, K. Rajan (Rensselaer Polytechnic Institute, Troy, NY 12180), S. Hashimoto (State University of New York, Albany, NY), R. D. Thompson, and S. S. Iyer (IBM, Yorktown Heights, NY), *Journal of Crystal Growth* **111**, No. 1–4, 948–956 (1991).

**p-Type Diluted Magnetic III–V Semiconductors**, H. Munekata, H. Ohno, R. R. Ruf, R. J. Gambino, and L. L. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Crystal Growth* **111**, No. 1–4, 1011–1015 (1991).

**Growth and Novel Properties of Magnetic Heterostructures by Molecular Beam Epitaxy**, J. M. Hong, D. D. Awschalom, F. Agullo-Rueda, and L. L. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Crystal Growth* **111**, No. 1–4, 1016–1023 (1991).

**A Simple Way to Reduce Series Resistance in p-Doped Semiconductor Distributed Bragg Reflectors**, M. Hong, J. P. Mannaerts (AT&T Bell Laboratories, Murray Hill, NJ 07974), J. M. Hong (IBM, Yorktown Heights, NY), R. J. Fischer, K. Tai, J. Kwo, J. M. Vandenberg, Y. H. Wang (AT&T Bell Laboratories, Murray Hill, NJ 07974), and J. Gamelin (University of California, Berkeley, CA), *Journal of Crystal Growth* **111**, No. 1–4, 1071–1075 (1991).

**On Pyrochlore-Type Bismuth Platinum Oxide**, T. Takamori and J. J. Boland (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Crystal Growth* **112**, No. 4, 660–662 (1991).

**Geometric Quantization of Chern-Simons Gauge Theory**, S. Axelrod (Princeton University, Princeton, NJ 08544), S. Della Pietra (IBM, Yorktown Heights, NY), and E. Witten (Institute for Advanced Study, Princeton, NJ), *Journal of Differential Geometry* **33**, No. 3, 787–902 (1991).

**Solvent Dynamical Effects in Scanning Tunneling Microscopy with a Polar Liquid in the Gap**, J. K. Sass (Fritz-Haber-Institut der MPG, Faradayweg 4–6, W-100 Berlin 33, Federal Republic of Germany), and J. K. Gimzewski (IBM, Rüschlikon, Switzerland), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* **308**, No. 1–2, 333–337 (1991).

**Probing the Chemical Stability of an Electrically Conductive Material as a Function of the Degree of Band Filling: Electrochemical Characterization of  $\mu$ -Oxo(Tetra-tert-butylphthalocyaninato) Germanium**, L. F. Leblevenec (IBM Corporation, 1701 North Street, Endicott, NY 13760) and J. G. Gaudiello (University of Michigan, Ann Arbor, MI), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* **312**, No. 1-2, 97-114 (1991).

**Digital Simulation of the Laser Induced Transient Open Circuit Photovoltage at the Semiconductor Electrolyte Interface**, J. M. Martin (University of Texas, Austin, TX 78712), S. P. Perone (San Jose State University, San Jose, CA), N. J. Kiwiet (University of Texas, Austin, TX), and M. A. Fox (IBM, Rochester, MN), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* **313**, No. 1-2, 61-80 (1991).

**Comparison of Silicon Containing Resist and Silylation of Imaged Resist for Multilayer Resist Lithography on a Metal Lift-off Application**, S. Miura, S. Greco, and G. Mack (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of the Electrochemical Society* **138**, No. 6, 1765-1769 (1991).

**Application of Chemical Mechanical Polishing to the Fabrication of VLSI Circuit Interconnections**, W. J. Patrick, W. L. Guthrie, C. L. Standley, and P. M. Schiabe (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of the Electrochemical Society* **138**, No. 6, 1778-1784 (1991).

**Epitaxial Growth and Selectivity of AlGa<sub>1-x</sub>As Using Novel Metalorganic Precursors**, M. S. Goorsky, T. F. Kuech, and R. M. Potemski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 6, 1817-1826 (1991).

**Rapid Thermal Annealing of Low Temperature Chemical Vapor Deposited Oxides**, E. Kobeda (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), M. Kellam (Microelectric Center of North Carolina, Research Triangle Park, NC), and C. M. Osburn (North Carolina State University, Raleigh, NC), *Journal of the Electrochemical Society* **138**, No. 6, 1846-1849 (1991).

**Determination of the Physical Structure of Biological Materials at Biosensor Interfaces by Techniques of Increasing Magnification from Microscopic to Molecular Scale**, U. J. Krull, R. S. Brown, E. T. Vandenberg (University of Toronto, Erindale Campus, 3359 Mississauga Road N., Mississauga L5L 1C6, Ontario, Canada), and W. M. Heckl (IBM Germany, Munich, Federal Republic of Germany), *Journal of Electron Microscopy Technique* **18**, No. 3, 212-222 (1991).

**A Fast Image Simulation Technique for High Resolution Electron Microscopy with Multicomponent Atomic Species**, W. Krakow (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Electron Microscopy Technique* **18**, No. 3, 277-290 (1991).

**Instability and Disturbance Amplification in a Mixed-Convection Boundary Layer**, R. A. Brewster (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and B. Gebhart (University of Pennsylvania, Philadelphia, PA), *Journal of Fluid Mechanics* **229**, 115-133 (1991).

**Multiple Prediction Intervals for Time Series: Comparison of Simultaneous and Marginal Intervals**, N. Ravishanker (University of Connecticut, Storrs, CT 06269), L. S. Y. Wu (IBM, Yorktown Heights, NY), and J. Glaz (University of Connecticut, Storrs, CT), *Journal of Forecasting* **10**, No. 5, 445-463 (1991).

**Motion of Surface Charge on Layered Organic Photoconductor**, E. J. Yarmchuk and G. E. Keefe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Imaging Science* **35**, No. 4, 231-234 (1991).

**Random Access Protocols for High Speed Interprocessor Communication Based on an Optical Passive Star Topology**, P. W. Dowd (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Lightwave Technology* **9**, No. 6, 799-808 (1991).

**A Spectroscopic Study of BaY<sub>2</sub>F<sub>8</sub>:Nd<sup>3+</sup>**, M. F. Joubert, B. Jacquier, C. Linares (Université Claude Bernard de Lyon 1, 69622 Villeurbanne, France) and R. M. Macfarlane (IBM, San Jose, CA), *Journal of Luminescence* **47**, No. 6, 269-280 (1991).

**Magnetic Thin Films, Multilayers and Superlattices: Proceedings of Symposium C on Magnetic Thin Films, Multilayers and Superlattices of the 1990 E-MRS Spring Conference, Strasbourg, France, 29 May-1 June 1990**, A. Ferst (Université de Paris-Sud, Orsay, France), G. Güntherodt (Physik Institut der RWTH Aachen, Federal Republic of Germany), B. Heinrich (Simon Fraser University, Toronto, Ontario, Canada), M. Mauer (Direction de la Recherche, France), and E. E. Marinero (IBM, San Jose, CA), *Journal of Magnetism and Magnetic Materials* **93**, 11 (1991).

**High-Resolution Transmission Electron Microscopy Studies of Seeded Epitaxial Co/Pt Superlattices**, C. J. Chien (Stanford University, Stanford, CA 94305), R. F. C. Farrow, C. H. Lee, C. J. Lin, and E. E. Marinero (IBM, San Jose, CA), *Journal of Magnetism and Magnetic Materials* **93**, 47-52 (1991).

**Spin-Valve Effect in Soft Ferromagnetic Sandwiches**, B. Dieny (Laboratoire Louis Néel, CNRS, B.P. 166X, 38042 Grenoble Cedex, France), V. S. Speriosu, B. A. Gurney, S. S. P. Parkin, D. R. Wilhoit, K. P. Roche, S. Metin, D. T. Peterson, and S. Nadimi (IBM, San Jose, CA), *Journal of Magnetism and Magnetic Materials* **93**, 101-104 (1991).

**Magnetic Force Microscopy and Its Application to Longitudinal Thin Films**, C. Schoenenberger, S. F. Alvarado (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), S. E. Lambert, and I. L. Sanders (IBM, San Jose, CA), *Journal of Magnetism and Magnetic Materials* **93**, 123-127 (1991).

**Spectroscopy of Multilayers for Magneto-Optic Storage**, D. Weller (IBM Corporation, 650 Harry Road, San Jose, CA 95120), W. Reim, K. Spörl (Siemens AG, Erlangen, Federal Republic of Germany), and H. Brändle (Lab. für Festkörperphysik, Zurich, Switzerland), *Journal of Magnetism and Magnetic Materials* **93**, 183-193 (1991).

**Magnetic and Structural Properties of Co/Pt Multilayers**, C.-J. Lin, G. L. Gorman, C. H. Lee, R. F. C. Farrow, E. E. Marinero, H. V. Do, H. Notarys (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and C. J. Chien (Stanford University, Stanford, CA), *Journal of Magnetism and Magnetic Materials* **93**, 194–206 (1991).

**In-situ Determination of Magnetic Anisotropies of Thin Epitaxial Fe(110) and Co(0001) Films on W(110) Using Brillouin Light Scattering**, P. Baumgart (IBM Corporation, 650 Harry Road, San Jose, CA 95120), B. Hillebrands, and G. Guntherodt (Physikalisches Institut, Aachen, Federal Republic of Germany), *Journal of Magnetism and Magnetic Materials* **93**, 225–228 (1991).

**New Diluted Magnetic Semiconductors Based on III-V Compounds**, S. Von Molnár, H. Muneke (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), H. Ohno (Hokkaido University, Sapporo, Japan), and L. L. Chang (IBM, Yorktown Heights, NY), *Journal of Magnetism and Magnetic Materials* **93**, 356–364 (1991).

**Magnetoresistance Enhancement in Gd-Y Bilayers**, P. P. Freitas, M. From (CFMC, Avenida Prof. Gama Pinto 2, P-1699 Lisbon, Portugal), L. V. Melo (INESC, Lisbon, Portugal), and T. S. Plaskett (IBM, Yorktown Heights, NY), *Journal of Magnetism and Magnetic Materials* **93**, 485–488 (1991).

**Molecular Beam Epitaxial Growth and Magnetic Properties of Co-Pt Superlattices Oriented Along the [001], [110] and [111] Axes of Pt**, C. H. Lee, R. F. C. Farrow, B. D. Hermsmeider, R. F. Marks, W. R. Bennett, C. J. Lien, E. E. Marinero (IBM Corporation, 650 Harry Road, San Jose, CA 95120), P. D. Kirchner (IBM, Yorktown Heights, NY), and C. J. Chien (Stanford University, Stanford, CA), *Journal of Magnetism and Magnetic Materials* **93**, 592–596 (1991).

**Magnetic Measurement of Interaction Effects in CoNiCr and CoPtCr Thin Film Media**, P. I. Mayo, K. O'Grady (UCNW, Bangor Gwynedd LL57 1UT, United Kingdom), R. W. Chantrell (Keele University, Staffordshire, United Kingdom), J. A. Cambridge (UCNW, Bangor Gwynedd, United Kingdom), I. L. Sanders, T. Yogi, and J. K. Howard (IBM, San Jose, CA), *Journal of Magnetism and Magnetic Materials* **95**, No. 1, 109–117 (1991).

**Structure and Magnetization of (100) FeCr and FeV Films Deposited on Pd/Cu/Si(100)**, C.-A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Magnetism and Magnetic Materials* **95**, No. 2, L137–L141 (1991).

**Reversed Magnetic Anisotropy of (100) Pd/Ni/Pd and Pd/NiPd/Pd Structures: Effects of Changing Lattice Mismatch**, C.-A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Magnetism and Magnetic Materials* **96**, No. 1–3, L1–L6 (1991).

**Absence of Reversed Magnetic Anisotropy in (111) Cu/Ni/Cu Structures**, C.-A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Magnetism and Magnetic Materials* **96**, No. 1–3, L7–L12 (1991).

**Reversal in Magnetic Anisotropy of (100)Cu-Ni Superlattices**, C.-A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Magnetism and Magnetic Materials* **97**, No. 1–3, 102–106 (1991).

**The Analysis of Simple Robots Using Bond Graphs**, R. M. Berger, H. A. Elmaraghy, and W. H. Elmaraghy (IBM Canada, Toronto, Ontario, Canada), *Journal of Manufacturing Systems* **9**, No. 1, 13–19 (1990).

**A Knowledge Based System for Process Sequence Design in Axisymmetrical Sheet Metal Forming**, S. K. Sitaraman, G. L. Kinzel, and T. Altan (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Materials Processing Technology* **25**, No. 3, 247–271 (1991).

**Stress and Thermal Expansion of  $\beta$  SiC Films by the Vibrating-Membrane Method**, B. S. Berry, W. C. Pritchett, R. I. Fuentes, and I. Babich (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Materials Research* **6**, No. 5, 1061–1065 (1991).

**Sol-Gel Route to High-T<sub>c</sub> Ceramic Precursors**, T. E. Karis (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and J. Economy (University of Illinois, Urbana, IL), *Journal of Materials Research* **6**, No. 8, 1623–1628 (1991).

**Laser Induced Fractal Crystallites in Amorphous Te Se Br Films**, T. Carriere, C. Ortiz, and G. Fuchs (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Materials Research* **6**, No. 8, 1680–1684 (1991).

**Elastic Energy Changes Accompanying Gamma Prime Rafting in Nickel-Base Superalloys**, J. C. Chang (IBM Corporation, P.O. Box A, Essex Junction, VT 05452) and S. M. Allen (Massachusetts Institute of Technology, Cambridge, MA), *Journal of Materials Research* **6**, No. 9, 1843–1855 (1991).

**Laser Irradiation Studies of Te-Se-Br Glasses**, J. L. Adam, C. Ortiz, J. R. Salem (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and X. H. Zhang (CNRS, Renne, France), *Journal of Materials Science* **26**, No. 11, 2900–2906 (1991).

**Platinum Erosion During the Growth of Sillénite-Type Crystals**, T. Takamori and J. J. Boland (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Materials Science Letters* **10**, No. 16, 972–974 (1991).

**Tongue-Twister Effects in the Silent Reading of Hearing and Deaf College Students**, V. L. Hanson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), E. W. Goodell (University of Connecticut, New Haven, CT), and C. A. Perfetti (University of Pittsburgh, Pittsburgh, PA), *Journal of Memory Language* **30**, No. 3, 319–330 (1991).

**Atomic Force Microscopy of Hydrated Bacterial Surface Protein**, W. Wiegrabe (Max Planck Institute, AM Klopferspitz, D-8033 Martinsried, Federal Republic of Germany), M. Nonnenmacher (IBM Germany, Boeblingen, Federal Republic of Germany), R. Guckenberger (Max Planck Institute, AM Klopferspitz, D-8033 Martinsried, Federal Republic of Germany), and O. Wolter (IBM Germany, Boeblingen, Federal Republic of Germany), *Journal of Microscopy* **163**, Part I, 79–84 (1991).



**A Model of a CA3 Hippocampal Pyramidal Neuron Incorporating Voltage-Clamp Data on Intrinsic Conductances**, R. D. Traub (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), R. K. S. Wong (Columbia University, New York, NY), R. Miles (State University of New York, Brooklyn, NY), and H. Michelson (Institut Louis Pasteur, 75724 Paris, France), *Journal of Neurophysiology* **66**, No. 2, 635–650 (1991).

**Two-Step Freezing Process in the Mixed Crystal RADP**, H. Grimm (Forschungszentrum Jülich GmbH, D-5170 Jülich, Federal Republic of Germany), E. Courtens (IBM, Rüschlikon, Switzerland), and K. Parlinski (Institute of Nuclear Physics, Cracow, Poland), *Journal of Non-Crystalline Solids* **131**, Part 1, 76–79 (1991).

**Relaxation Dynamics in Orientational Glasses**, A. Loidl, K. Knorr, J. Hessinger, R. Bohmer, I. Fehst (University of Mainz, D-6500 Mainz, Federal Republic of Germany), and U. T. Hochli (IBM, Rüschlikon, Switzerland), *Journal of Non-Crystalline Solids* **131**, Part I, 269–274 (1991).

**Interdiffusion at the Interface of Polymeric Bilayers: Evidence for Reptation**, G. P. Felcher (Argonne National Laboratories, Argonne, IL 60439), A. Karim, and T. P. Russell (IBM, San Jose, CA), *Journal of Non-Crystalline Solids* **131**, Part 2, 703–708 (1991).

**Structures of an Amorphous Ti-Si Alloy Formed by Thermal Reaction**, K. Holloway (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), P. Moine, J. Delage (Université de Poitiers, Poitiers, France), and R. Sinclair (Stanford University, Stanford, CA), *Journal of Non-Crystalline Solids* **134**, No. 1–2, 133–140 (1991).

**Benzofuroxan Photochemistry: Direct Observation of 1,2-Dinitrosobenzene by Steady-State Spectroscopy. A New Photochromic Reaction**, N. P. Hacker (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Organic Chemistry* **56**, No. 17, 5216–5217 (1991).

**Performance Evaluation of Parallel Fast Fourier Transform on a Multiprocessor Workstation**, S. Horiguchi (Tohoku University, Aobaku, Sendai 980, Japan) and T. Nakada (IBM Japan, Ltd., Tokyo, Japan), *Journal of Parallel and Distributed Computing* **12**, No. 2, 158–163 (1991).

**Merging Multiple Lists on Hierarchical-Memory Multiprocessor**, P. J. Varman, S. D. Scheufler (Rice University, Houston, TX 77251), B. R. Iyer (IBM, San Jose, CA), and G. R. Ricard (IBM, Rochester, MN), *Journal of Parallel and Distributed Computing* **12**, No. 2, 171–177 (1991).

**An Adaptive Strategy for Load Sharing in Distributed Database Environments with Information Lags**, A. Leff and P. S. Yu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Parallel and Distributed Computing* **13**, No. 1, 91–103 (1991).

**Confirmation of a Vanishingly Small Ring-Current Magnetic Susceptibility of Icosahedral  $C_{60}$** , R. S. Ruoff, D. Beach, J. Cuomo, T. McGuire (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), R. L. Whetten, and F. Diederich (University of California, Los Angeles, CA), *Journal of Physical Chemistry* **95**, No. 9, 3457–3459 (1991).

**NEFAXS and ELS Study of the Orientation of Sulfur Dioxide on Ag(110)**, J. L. Solomon (Process Technology Laboratories, 3M Center, St. Paul, MN 55144), R. J. Madix (Stanford University, Stanford, CA), W. Wurth, and J. Stohr (IBM, San Jose, CA), *Journal of Physical Chemistry* **95**, No. 9, 3687–3691 (1991).

**Dynamic Polarizability of Haloforms: Experimental and Ab Initio Theoretical**, S. P. Karna, E. Perrin, P. N. Prasad (State University of New York, Buffalo, NY 14214), and M. Dupuis (IBM, Kingston, NY), *Journal of Physical Chemistry* **95**, No. 11, 4329–4332 (1991).

**Group Theory Statistical Mechanics and Simulation Studies of Electrorheology**, M. W. Evans (Cornell University, Ithaca, NY 14853) and D. M. Heyes (Royal Holloway and Bedford New College, London, United Kingdom), *Journal of Physical Chemistry* **95**, No. 13, 5287–5392 (1991).

**Hydrogen Bonds and (Hyper)polarizabilities in Molecular Crystals: An Ab Initio SCF Study of Urea**, J. Perez (ETS Engineers, Avenida Diagonal 647, 08028 Barcelona, Spain) and M. Dupuis (IBM, Kingston, NY), *Journal of Physical Chemistry* **95**, No. 17, 6525–6529 (1991).

**Theoretical Studies of the Low-Lying Excited States of Bicyclobutane: Photochemical Pathways to Butadiene and Cyclobutene**, G. D. Bent (University of Connecticut, Storrs, CT 06269) and A. R. Rossi (IBM, Yorktown Heights, NY), *Journal of Physical Chemistry* **95**, No. 19, 7228–7233 (1991).

**Infrared Spectroelectrochemical Study of Cyanide Adsorption on Palladium Surfaces**, K. Ashley, F. Weinert (San Jose State University, San Jose, CA 95192), M. G. Samant, H. Seki, and M. R. Philpott (IBM, San Jose, CA), *Journal of Physical Chemistry* **95**, No. 19, 7409–7414 (1991).

**Behavior of the Harmonic Measure at the Bottom of Fjords**, C. J. G. Evertsz, P. W. Jones (Yale University, Box 2155 Yale Station, New Haven, CT 06520), and B. B. Mandelbrot (IBM, Yorktown Heights, NY), *Journal of Physics A* **24**, No. 8, 1889–1901 (1991).

**Intensity-Dependent Polarization Correlations in the Field-Free  $6S \rightarrow 7S \rightarrow 15P$  Two-Photon Transition of Caesium**, N. Schlumpf, V. L. Telegdi, A. Weis, D. Zevgolis, L. Zhao (ETH Zurich, 8093 Zurich, Switzerland), and J. Hoffnagle (IBM, San Jose, CA), *Journal of Physics B* **24**, No. 11, 2687–2697 (1991).

**The Validity of the Non-linear Shell Model for Localized Dipole Moments in  $Li_{1-x}K_xTaO_3$** , M. G. Stachiotti, R. L. Migoni (Universidad Nacional Rosario, 27 Febrero 210 Bis, 2000 Rosario, Argentina), and U. T. Höchli (IBM, Rüschlikon, Switzerland), *Journal of Physics, Condensed Matter* **3**, No. 21, 3689–3695 (1991).

**Pores in Fractal Aerogels and Their Incidence on Scaling**, R. Vacher (University of Montpellier 2, F-34095 Montpellier, France), E. Courtens, E. Stoll (IBM, Rüschlikon, Switzerland), M. Böffen (Villeroy & Boch AG, Federal Republic of Germany), and H. Rothauser (IBM, Rüschlikon, Switzerland), *Journal of Physics, Condensed Matter* **3**, No. 33, 6531–6545 (1991).

**The Synthesis of Soluble, Substituted Silane High Polymers by Wurtz Coupling Techniques**, R. D. Miller, D. Thompson, R. Sooriyakumaran (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and G. N. Fickes (University of Nevada, Reno, NV), *Journal of Polymer Science A* **29**, No. 6, 813-824 (1991).

**Elementary Reaction and Anionic Polymerization of Isopropenyl *t*-Butyl Ketone**, H. Ito and A. F. Renaldo (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Polymer Science A* **29**, No. 7, 1001-1013 (1991).

**Miscibility Behavior and Reequilibration of Binary Poly(amic acid) Mixtures**, M. Ree, D. Y. Yoon, and N. Volksen (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Polymer Science B* **29**, No. 10, 1203-1213 (1991).

**Energetics of  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_{4-y}$  Solid Solutions ( $0.0 \leq x \leq 1.0$ )**, J. Bularzik, A. Navrotsky, J. DiCarlo, J. Bringley (Princeton University, Princeton, NJ 08544), B. Scott, and S. Trail (IBM, Yorktown Heights, NY), *Journal of Solid State Chemistry* **93**, No. 2, 418-429 (1991).

**On the Crystal Structures of  $\text{La}_2\text{Ti}_2\text{O}_7$  and  $\text{La}_2\text{Ti}_5\text{O}_{27}$ : High Resolution Electron Microscopy**, T. Williams (CSIRO, Bag 33, Clayton, Victoria 3168, Australia), H. Schmalle, A. Reller (University of Zurich, Zurich, Switzerland), F. Lichtenberg, D. Widmer, and G. Bednorz (IBM, Rüschlikon, Switzerland), *Journal of Solid State Chemistry* **93**, No. 2, 534-548 (1991).

**Two-Dimensional Vibratory Impact with Chaos**, J. E. Kozol (IBM Corporation, 1701 North Street, Endicott, NY 13760) and R. M. Brach (University of Notre Dame, Notre Dame, IN), *Journal of Sound and Vibration* **148**, No. 2, 319-327 (1991).

**Electron Microscopy Study of Groel Chaperonin: Different Views of the Aggregate Appear as a Function of Cell Growth Temperature**, J. M. Carazo, S. Marco, G. Abella, J. L. Carrascosa, J. P. Secilla (Universidad Autónoma Madrid, E-28049 Madrid, Spain), and M. Muyal (IBM Spain, Madrid, Spain), *Journal of Structural Biology* **106**, No. 3, 211-220 (1991).

**An Array Language for Data Parallelism: Definition, Compilation, and Applications**, L. F. Ortiz (Thinking Machines Corporation, 245 First Street, Cambridge, MA 02142), R. Y. Pinter (IBM Israel, Haifa, Israel), and S. S. Pinter (Technion, Haifa, Israel), *Journal of Supercomputing* **5**, No. 1, 7-29 (1991).

**Rational Geometry in Space**, G. Gentili (International School for Advanced Studies, 34014 Trieste, Italy) and M. A. O'Connor (IBM, Yorktown Heights, NY), *Journal of Symbolic Computation* **11**, No. 3, 213-229 (1991).

**Presburger Arithmetic with Unary Predicates is  $\pi_1/1$  Complete**, J. Y. Halpern (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Symbolic Logic* **56**, No. 2, 637-642 (1991).

**Chemical Amplification in Resist Design**, M. Ueda (Yamagata University, Yonezawa, Yamagata 992, Japan) and H. Ito (IBM, San Jose, CA), *Journal of Synthetic Organic Chemistry Japan* **49**, No. 5, 437-450 (1991).

**Requirements Specification for Ada Software under DoD-STD-2167A**, N. Walters (IBM Corporation, Manassas, VA 22110), *Journal of Systems and Software* **15**, No. 2, 173-183 (1991).

**The Technical Communicator's Guide to Understanding Statistics and Research Design**, J. H. Spyridakis, M. J. Wenger (University of Washington, 12 Loew Hall, FH-40, Seattle, WA 98195), and S. H. Andrew (IBM, Yorktown Heights, NY), *Journal of Technical Writing and Communications* **21**, No. 3, 207-219 (1991).

**Piezoelectric Modal Sensor Actuator Pairs for Critical Active Damping Vibration Control**, C. K. Lee, W. W. Chiang, and T. C. O'Sullivan (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of the Acoustical Society of America* **90**, No. 1, 374-384 (1991).

**Piezoelectric Strain Rate Gauges**, C. K. Lee and T. C. O'Sullivan (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of the Acoustical Society of America* **90**, No. 2, 945-953 (1991).

**Ceramic and Glass Ceramic Packaging in the 1990s**, R. R. Tummala (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of the American Ceramic Society* **74**, No. 5, 895-908 (1991).

**Dissociative Electron Capture of Sulfones and Sulfonates: Matrix Isolation ESR Study**, P. H. Kasai (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of the American Chemical Society* **113**, No. 9, 3317-3321 (1991).

**Second Nuclear Magnetic Resonance Study of the Structure of the Fullerene  $\text{C}_{70}$** , R. D. Johnson, G. Meijer, J. R. Salem, and D. S. Bethune (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of the American Chemical Society* **113**, No. 9, 3619-3621 (1991).

**Distortion Toward Bridging Accompanying Hyperconjugation in a Simple Tertiary Alkyl Carbocation**, P. V. Schleyer, J. W. D. Carneiro (University of Erlangen-Nürnberg, Henkestrasse 42, D-8520 Erlangen, Federal Republic of Germany), W. Koch (IBM Germany, Heidelberg, Federal Republic of Germany), and D. A. Forsyth (Northeastern University, Boston, MA), *Journal of the American Chemical Society* **113**, No. 10, 3990-3992 (1991).

**$\text{SiOH}^+/\text{HSiO}^+$  and  $\text{SiOH}/\text{HSiO}$ : Gas Phase Generation and Characterization: A Combined Neutralization Reionization Mass Spectrometry and Ab Initio Molecular Orbital Study**, R. Srinivas, D. Sulzle (Technical University of Berlin, D-1000 Berlin 12, Federal Republic of Germany), W. Koch (IBM Germany, Heidelberg, Federal Republic of Germany), C. H. Depuy (University of Colorado, Boulder, CO), and H. Schwarz (IBM Germany, Heidelberg, Federal Republic of Germany), *Journal of the American Chemical Society* **113**, No. 16, 5970-5975 (1991).

**Substituent Effects and the Charge Topology in Nitriles and Cyanides**, Y. Aray, J. Murgich (Instituto de Venezolano Invest. Cient., Apartado 21827, Caracas 1020A, Venezuela), and M. A. Luna (IBM Venezuela, Caracas, Venezuela), *Journal of the American Chemical Society* **113**, No. 19, 7135-7143 (1991).

**A Model Theoretic Analysis of Knowledge**, R. Fagin, J. Y. Halpern (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and M. Y. Vardi (Weizman Institute of Science, Rehovot, Israel), *Journal of the Association for Computing Machinery* **38**, No. 2, 382-428 (1991).

**A Lower Bound for Integer Greatest Common Divisor Computations**, Y. Mansour (Harvard University, Cambridge, MA 02138), B. Schieber, and P. Tiwari (IBM, Yorktown Heights, NY), *Journal of the Association for Computing Machinery* **38**, No. 2, 453-471 (1991).

**Confirmation of the H-Bridged Structure of the 2-Butyl Cation by Comparison of Experimental and *Ab Initio* IR Frequencies**, P. Buzek, P. von Rague Schleyer, S. Sieber (University of Erlangen-Nurnberg, Henkestrasse 42, D-8520 Erlangen, Federal Republic of Germany), W. Koch (IBM Germany, Heidelberg, Federal Republic of Germany), J. W. de M. Carneiro (IME, Rio de Janeiro, Brazil), H. Vancik, and D. E. Sunko (University of Zagreb, Zagreb, Yugoslavia), *Journal of the Chemical Society, Chemical Communications*, No. 10, 671-674 (1991).

**Computer Simulation of Oxygen Segregation in CZ/MCZ Silicon Crystals and Comparison with Experimental Results**, K. M. Kim (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and W. E. Langlois (IBM, San Jose, CA), *Journal of the Electrochemical Society* **138**, No. 6, 1850-1855 (1991).

**Critical Angles for Channeling of Boron Ions Implanted into Single-Crystal Silicon**, C. Park, K. M. Klein, A. F. Tasch (University of Texas, Austin, TX 78712), and J. F. Ziegler (IBM, Yorktown Heights, NY), *Journal of the Electrochemical Society* **138**, No. 7, 2107-2115 (1991).

**Copper Corrosion With and Without Inhibitors**, V. Brusic, M. A. Frisch, B. N. Eldridge, F. P. Novak, F. B. Kaufman, B. M. Rush, and G. S. Frankel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 8, 2253-2259 (1991).

**In Situ Scanning Tunneling Microscopy of Copper Deposition with Benzotriazole**, M. J. Armstrong (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and R. H. Muller (University of California, Berkeley, CA), *Journal of the Electrochemical Society* **138**, No. 8, 2303-2307 (1991).

**Temperature and Bias Effects on the Physical and Tribological Properties of Diamond-Like Carbon**, A. Grill, V. Patel, and B. S. Meyerson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 8, 2362-2367 (1991).

**A Two-Dimensional Process Model for Chemomechanical Polish Planarization**, J. Warnock (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 8, 2398-2402 (1991).

**Feature-Size Dependence of Etch Rate in Reactive Ion Etching**, Y. H. Lee and Z. H. Zhou (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 8, 2439-2445 (1991).

**Defect Clustering and Boron Electrical Deactivation in p-Doped Polycrystalline Diamond Films**, D. Narducci, C. R. Guarnieri, and J. J. Cuomo (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 8, 2446-2451 (1991).

**Reactive Ion Etching of Silicon and Silicon Dioxide in CF<sub>4</sub> Plasmas Containing H<sub>2</sub> or C<sub>2</sub>F<sub>4</sub> Additives**, J. P. Simko and G. S. Oehrlein (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 9, 2748-2752 (1991).

**The Use of Gas Monitors to Characterize a Low-Temperature Atmospheric-Pressure Epitaxial System**, P. D. Agnello and T. O. Sedgwick (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 9, 2785-2789 (1991).

**Epitaxial Growth of GaAs with (C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>GaCl and AsH<sub>3</sub> in a Hotwall Reactor**, N. I. Buchan, T. F. Kuech, M. A. Tischler, G. Scilla, F. Cardone, and R. Potemski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Electrochemical Society* **138**, No. 9, 2789-2794 (1991).

**Vendor Process Contamination Checklist: A Diagnostic and Troubleshooting Tool**, R. Nagarajan (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of the IES* **34**, No. 3, 45-49 (1991).

**Modeling Optical Microscope Images of Integrated-Circuit Structures**, C.-M. Yuan (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and A. J. Strojwas (Carnegie Mellon University, Pittsburgh, PA), *Journal of the Optical Society of America A* **8**, No. 5, 778-790 (1991).

**Coherent Transients Excited by Subpicosecond Pulses of Terahertz Radiation**, H. Harde and D. Grischowski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of the Optical Society of America B* **8**, No. 8, 1642-1651 (1991).

**A Reliable Data-Based Bandwidth Selection Method for Kernel Density Estimation**, S. J. Sheather (University of New South Wales, Sydney, Australia) and M. C. Jones (IBM, Yorktown Heights, NY), *Journal of the Royal Statistical Society B* **53**, No. 3, 683-690 (1991).

**A Viscoelastic Description of the Glass Transition Conversion Relationship for Reactive Polymers**, S. Gan, J. C. Seferis, and R. B. Prime (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *Journal of Thermal Analysis* **37**, No. 3, 463-478 (1991).

**Air Pollution Illnesses: Overview and Challenge**, F. D. Aldrich (IBM Corporation, Boulder, CO 80302), *Journal of Toxicology, Clinical Toxicology* **29**, No. 3, 307-313 (1991).

**Indoor Air Pollution: An Edifice Complex**, B. O. Brooks, G. M. Utter, J. A. Debroy, and R. D. Schimke (IBM Corporation, Boulder, CO 80302), *Journal of Toxicology, Clinical Toxicology* **29**, No. 3, 315-374 (1991).

**The Application of Scanning Tunneling Microscopy to Study Lubricant Distribution of Magnetic Thin Film Rigid Disk Surfaces**, T. S. Sriram, K. J. Wahl, Y. W. Chung (Northwestern University, Evanston, IL 60208), B. Bhushan (IBM, San Jose, CA), and W. Rothschild (IBM, Rochester, MN), *Journal of Tribology* 113, No. 2, 245-248 (1991).

**Atomic Force Microscopy of Magnetic Rigid Disks and Sliders and Its Applications to Tribology**, B. Bhushan and G. S. Blackman (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Tribology* 113, No. 3, 452-457 (1991).

**Hydrogen Storage, Microstructural Properties of, and Electromigration Effects in Al/Pd/Al Films**, A. Domenicucci (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and R. W. Vook (Syracuse University, Syracuse, NY), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 581-585 (1991).

**Vibrational Excitation Processes in Molecular Discharges**, J. A. O'Neill (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 669-674 (1991).

**The Effects of Substrate Potentials on Electron Cyclotron Resonance Plasmas**, S. M. Rossnagel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), K. Schatz (University of Illinois, Champaign-Urbana, IL), S. J. Whitehair, R. C. Guarnieri (IBM, Yorktown Heights, NY), D. N. Ruzic (University of Illinois, Champaign-Urbana, IL), and J. J. Cuomo (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 702-706 (1991).

**Studies of the Reactive Ion Etching of SiGe Alloys**, G. S. Oehrlein, G. M. W. Kroesen, E. de Frésart, Y. Zhang, and T. D. Bestwick (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 768-774 (1991).

**Etching Behavior of an Epoxy Film in  $O_2/CF_4$  Plasmas**, F. Emmi, F. D. Egitto, and L. J. Matienzo (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 786-789 (1991).

**Vacuum Ultraviolet Radiation Damage in Electron Cyclotron Resonance and Reactive Ion Etch Plasmas**, D. A. Buchanan and G. Fortuño-Wiltshire (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 804-809 (1991).

**Ballistic Electron Emission Spectroscopy of Noble Metal-GaP(110) Interfaces**, R. Ludeke and M. Prietsch (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 885-890 (1991).

**GaAs Surface Oxidation and Deoxidation Using Electron Cyclotron Resonance Oxygen and Hydrogen Plasmas**, Z. Lu, M. T. Schmidt, R. M. Osgood, Jr. (Columbia University, New York, NY 10027), W. M. Holber (IBM, Yorktown Heights, NY), and D. V. Podlesnik (IBM, Hopewell Junction, NY), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 1040-1044 (1991).

**Surface Etching and Roughening in Integrated Processing of Thermal Oxides**, M. Offenbergh, M. Liehr, and G. W. Rubloff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 1058-1065 (1991).

**Helium Plasma Enhanced Chemical Vapor Deposited Oxides and Nitrides: Process Mechanisms and Applications in Advanced Device Structures**, A. A. Bright (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 3, Part I, 1088-1093 (1991).

**Absorption and Interaction of Methylene Chloride with Metallized Polyimide Films**, L. J. Matienzo, F. Emmi, D. C. VanHart, and J. C. Lo (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1278-1282 (1991).

**The Use of Secondary Ion Mass Spectrometry to Investigate Copolymer Enhanced Adhesion Between Immiscible Polymers**, V. R. Deline, H. R. Brown, and K. Char (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1283-1286 (1991).

**Low-Voltage Scanning Electron Microscopy: A Surface Sensitive Technique**, A. D. Katnani, S. Hurban, and B. Rands (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1426-1433 (1991).

**Scanning Tunneling Microscopy Studies of Pd-Sn Catalyzed Electroless Cu Deposited on Pyrolytic Graphite**, L. M. Siperko (IBM Corporation, 1701 North Street, Endicott, NY 13760), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1457-1460 (1991).

**Formation of  $Cu_3Si$  and Its Catalytic Effect on Silicon Oxidation at Room Temperature**, L. Stolt, A. Charai, F. M. d'Heurle, P. M. Fryer, and J. M. E. Harper (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1501-1505 (1991).

**Two-Dimensional Imaging of Photofragments and Species Desorbed from Surfaces: Energy and Angle Resolved Studies**, T. J. Chuang, R. Schwarzwald, and A. Mödl (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1719-1725 (1991).

**X-Ray Photoelectron Spectroscopy of Oxygen Adsorbates on Al(111): Theory Experiment**, P. S. Bagus, F. Parmigiani, G. Polzonetti, F. Illas, and C. R. Brundle (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1747-1748 (1991).

**The Polarization Dependence of Bi Induced Surface States on GaAs(110)**, A. B. McLean, R. Ludeke, M. Prietsch (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. Heskett, D. Tang (University of Rhode Island, Kingston, RI), and T. M. Wong (University of Pennsylvania, Philadelphia, PA), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1836-1839 (1991).

**Images of a Microelectronic Device with the X1-SPEM, a First Generation Scanning Photoemission Microscope at the National Synchrotron Light Source**, H. Ade, J. Kirz (State University of New York, Stony Brook, NY 11794), S. Hulbert, E. Johnson (NSLS, Brookhaven National Laboratory, Upton, NY), E. Anderson (LBL, Berkeley, CA), and D. Kern (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology A* 9, No. 3, 1902-1906 (1991).

**Alkali Metal Chains on the GaAs(110) Surface**, I. P. Batra and C. Y. Fong (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 3, Part II, 1962-1963 (1991).

**Relation of Thickness and Some Physical Properties of NiFe Thin Films**, R. M. Valletta, G. Guthmiller, and G. Gorman (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 4, 2093-2098 (1991).

**Thermal Process Effects on NiFe and NiFeRh Films**, R. M. Valletta, C. Hwang, and H. Lefakis (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 4, 2107-2112 (1991).

**Effect of Substrate Roughness on the Columnar Growth of Cu Films**, P. Bai, J. F. McDonald (Rensselaer Polytechnic Institute, Troy, NY 12180), and T. M. Lu (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology A* 9, No. 4, 2113-2117 (1991).

**Magnetization of (100) Cr Fe Cr and Pd/Fe/Pd Structures**, C. A. Chang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 4, 2118-2122 (1991).

**Ion Beam Sputtered Diamond-Like Carbon with Densities of 2.9 G CC**, J. J. Cuomo, J. P. Doyle, J. Bruley, and J. C. Liu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 4, 2210-2215 (1991).

**Stress and Thermal Expansion of Boron Doped Silicon Membranes on Silicon Substrates**, B. S. Berry and W. C. Pritchett (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Journal of Vacuum Science and Technology A* 9, No. 4, 2230-2234 (1991).

**Etch Characterization of an Electron Cyclotron Resonance Process Reactor**, G. Fortuño-Wiltshire (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Journal of Vacuum Science and Technology A* 9, No. 4, 2356-2363 (1991).

**Deposition of Transparent ZRO<sub>2</sub> on Polyetherimide Using a KRF Excimer Laser**, M. C. Chuang (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and G. A. Smith (General Electric Company, Schenectady, NY), *Journal of Vacuum Science and Technology A* 9, No. 4, 2397-2399 (1991).

**Characterization of Epitaxial Thin Films by X-Ray Diffraction**, A. Segmüller (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 4, 2477-2482 (1991).

**Cracking and Delamination of Coatings**, M. D. Thouless (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 4, 2510-2515 (1991).

**Thermal Stress Induced and Electromigration Induced Void Open Failures in Al and Al-Cu Fine Lines**, T. Kwok, K. K. Chan, H. Chan, and J. Simko (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 4, 2523-2526 (1991).

**Studies of Adhesion of Metal Films to Polyimide**, D. L. Pappas, J. J. Cuomo (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and K. G. Sachdev (IBM, Hopewell Junction, NY), *Journal of Vacuum Science and Technology A* 9, No. 5, 2704-2708 (1991).

**Rastered Laser Light Scattering Studies During Plasma Processing: Particle Contamination Trapping Phenomena**, G. S. Selwyn, J. E. Heidenreich, and K. L. Haller (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology A* 9, No. 5, 2817-2824 (1991).

**Plasma-Surface Interactions of Fluorocarbon Etching of Silicon Dioxide**, J. W. Butterbaugh (IBM Corporation, P.O. Box A, Essex Junction, VT 05452) and D. C. Gray (Massachusetts Institute of Technology, Cambridge, MA), *Journal of Vacuum Science and Technology B* 9, No. 3, 1461-1470 (1991).

**High Resolution Atomic Force Microscopy Potentiometry**, J. M. R. Weaver and D. W. Abraham (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* 9, No. 3, 1559-1561 (1991).

**Semiconductor Characterization by Scanning Force Microscope Surface Photovoltage Microscopy**, J. M. R. Weaver and H. K. Wickramasinghe (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* 9, No. 3, 1562-1565 (1991).

**Extrinsic p-Doped HgCdTe Grown by Direct Alloy Growth Organometallic Epitaxy**, N. R. Taskar (Philips Labs, Briarcliff Manor, NY 10510), I. B. Bhat, K. K. Parat, S. K. Ghandhi (Rensselaer Polytechnic Institute, Troy, NY), and G. J. Scilla (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology B* 9, No. 3, 1705-1708 (1991).

**Electrolytic Scanning Tunneling Microscopy and Point Contact Studies at Electrochemically Polished Au(111) Substrates With and Without PB Adsorbates**, M. Binggeli (Universität Bern, Freiestrasse 3, CH-3000 Bern 9, Switzerland), D. Carnal, R. Nyffenegger, H. Siegenthal, R. Christoph, and H. Rohrer (IBM, Rüschlikon, Switzerland), *Journal of Vacuum Science and Technology B* 9, No. 4, 1985-1992 (1991).

**Surface Grid Technique for Noncontact e-Beam Testing of Very Large Scale Integrated Package Substrate**, K. L. Lee, C. Schaefer, and D. P. Kern (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* 9, No. 4, 1993-2005 (1991).

**Temperature Dependent Transport Measurements on Strained Si/Si<sub>1-x</sub>Ge Resonant Tunneling Devices**, U. Gennser (Columbia University, New York, NY 10027), V. P. Kesan, S. S. Iyer, T. J. Bucelot (IBM, Yorktown Heights, NY), and E. S. Yang (Columbia University, New York, NY), *Journal of Vacuum Science and Technology B* 9, No. 4, 2059-2063 (1991).

**In Situ Photoreflectance Study of the Effects of Sputter/Annealing on the Fermi Level at (001) n- and p-Type GaAs Surfaces**, X. Yin, H.-M. Chen, F. H. Poolak, Y. Cao, P. A. Montano (Brooklyn College of the City University of New York, Brooklyn, NY 11210), P. D. Kirchner, G. D. Pettit, and J. M. Woodall (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology B* 9, No. 4, 2114-2117 (1991).

**Increased Range of Fermi-Level Stabilization Energy at Metal/Melt-Grown GaAs(100) Interfaces**, S. Chang, I. M. Vitomirov, L. J. Brillson (Xerox Webster Research Center, 800 Phillips Road, Webster, NY 14580), D. F. Rioux (University of Wisconsin, Madison, WI), P. D. Kirchner, G. D. Pettit, and J. M. Woodall (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology B* 9, No. 4, 2129-2134 (1991).

**Substrate Temperature Dependence of Arsenic Precipitate Formation in AlGaAs and GaAs**, K. Mahalingam, N. Otsuka, M. R. Melloch (Purdue University, West Lafayette, IN 47907), J. M. Woodall, and A. C. Warren (IBM, Yorktown Heights, NY), *Journal of Vacuum Science and Technology B* 9, No. 4, 2328-2332 (1991).

**Ballistic Electron Emission Spectroscopy of Metals on GaP(110)**, R. Ludeke, M. Prietsch, and A. Samsavar (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* 9, No. 4, 2342-2348 (1991).

**Surface Fermi Level Engineering: Or There's More to Schottky Barriers than Just Making Diodes and Field Effect Transistor Gates**, J. L. Freeouf, A. C. Warren, P. D. Kirchner, J. M. Woodall (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and M. R. Melloch (Purdue University, West Lafayette, IN), *Journal of Vacuum Science and Technology B* 9, No. 4, 2355-2357 (1991).

**Intrinsic Recombination and Interface Characterization in "Surface-Free" GaAs Structures**, D. J. Wolford, G. D. Gilliland, T. F. Kuech, L. M. Smith, J. Martinsen, J. A. Bradley, C. F. Tsang (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), R. Venkatasubramanian, S. K. Ghandi (Rensselaer Polytechnic Institute, Troy, NY), and H. P. Hjalmarso (Sandia National Laboratories, Albuquerque, NM), *Journal of Vacuum Science and Technology B* 9, No. 4, 2369-2376 (1991).

**Intrinsic, Heterointerface Excitonic States in GaAs(n)/Al<sub>0.3</sub>Ga<sub>0.7</sub>As(p) Double Heterostructure**, G. D. Gilliland, D. J. Wolford, T. F. Kuech, and J. A. Bradley (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* 9, No. 4, 2377-2383 (1991).

**Photoluminescence from Epitaxial Si/Si<sub>0.95</sub>Ge<sub>0.05</sub> Heterostructures as Probed by Optically Active Deep Levels**, G. A. Northrop, D. J. Wolford, and S. S. Iyer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Journal of Vacuum Science and Technology B* 9, No. 4, 2388-2393 (1991).

## L

**In Situ Surface X-ray Scattering Measurements of Electrochemically Deposited Bi on Ag(111): Structure, Compressibility, and Comparison with Ex Situ Low-Energy Electron Diffraction Measurements**, M. F. Toney, J. G. Gordon, M. G. Samant, G. L. Borges, D. G. Wiesler (IBM Corporation, 650 Harry Road, San Jose, CA 95120), D. Yee, and L. B. Sorensen (University of Washington, Seattle, WA), *Langmuir* 7, No. 4, 796-802 (1991).

**In Situ Vibrational Spectroscopy of Contact Adsorbed Thiocyanate on Silver Electrodes: Experiment and Theory**, M. G. Samant (IBM Corporation, 650 Harry Road, San Jose, CA 95120), K. Kunimatsu (Equos Research K.K., Sapporo 060, Japan), R. Viswanatham (Beloit College, Beloit, WI), H. Seki (IBM, San Jose, CA), G. Pacchioni (Università di Milano, Milan, Italy), P. S. Bagus, and M. R. Philpott (IBM, San Jose, CA), *Langmuir* 7, No. 6, 1261-1268 (1991).

**Solubility, Dispersion, and Carbon Adsorption of a Chromium Hydroxyazo Complex Dye in a Styrene-Butyl Methacrylate Copolymer**, A. R. Gutierrez, A. Diaz (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and B. Baird (IBM, Boulder, CA), *Langmuir* 7, No. 9, 1923-1927 (1991).

**Reversible Oxidative Roughening of Au(111) in Aqueous Salt Solutions**, E. Hollond-Moritz (Universität zu Köln, Zulpicherstrasse 77, D-5000 Köln, Federal Republic of Germany), J. Gordon II, K. Kanazawa, and R. Sonnenfeld (IBM, San Jose, CA), *Langmuir* 7, No. 9, 1981-1987 (1991).

**The Relation Between the Path of Centers and Smale's Regularization of the Linear Programming Problem**, M. Kojima (Tokyo Institute of Technology, Meguro-ku, Tokyo 152, Japan) and N. Megiddo (IBM, San Jose, CA), *Linear Algebra and Its Applications* 152, 135-139 (1991).

**A Decomposition of Toeplitz Matrices and Optimal Circulant Preconditioning**, M. Tismenetsky (IBM Corporation, D-6900 Heidelberg, Federal Republic of Germany), *Linear Algebra and Its Applications* 154, 105-121 (1991).

**A New Preconditioning Technique for Solving Large Sparse Linear Systems**, M. Tismenetsky (IBM Corporation, IL-32000 Haifa, Israel), *Linear Algebra and Its Applications* 154, 331-353 (1991).

**The Average Shapes of Flexible Mesogenic Molecules: On the Choice of Reference Frame**, A. Emerson, G. R. Luckhurst (University of Southampton, Southampton SO9 5NH, Hants, England), and R. W. Phippen (IBM United Kingdom, Winchester, England), *Liquid Crystals* 10, No. 1, 1-14 (1991).

**Rod-Like Mesogens with Antipathetic Fluorocarbon and Hydrocarbon Tails**, H. T. Nguyen, G. Sigaud, M. F. Achard, F. Hardouin (University of Bordeaux 1, Ave. A. Schweitzer, F-33600 Pessac, France), R. J. Twieg, and K. Betterton (IBM, San Jose, CA), *Liquid Crystals* 10, No. 3, 389-396 (1991).

## M

**Searching Gene and Protein-Sequence Databases**, T. Barsalou (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and D. L. Brutlag (Stanford University, Stanford, CA), *M. D. Computing* 8, No. 3, 144-149 (1991).

**Behavior of Isotopic, Binary Polymer Blends in the Vicinity of Neutral Surfaces: The Effects of Chain-Length Disparity**, S. K. Kumar (Penn State University, University Park, PA 16802) and T. P. Russell (IBM, San Jose, CA), *Macromolecules* **24**, No. 13, 3816–3820 (1991).

**Structural Studies of Semifluorinated *n*-Alkanes. 4. Synthesis and Characterization of  $F(CF_2)_n C_6 H_4 (CF_2)_n F$  by Conventional and Fourier Transform Raman Spectroscopy**, A. Schulte, V. M. Hallmark, R. Twieg, K. Song, and J. F. Rabolt (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **24**, No. 13, 3901–3905 (1991).

**Single-Particle Diffusion into a Disordered Matrix: Simulation of Metal-Polymer Interface**, B. D. Silverman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Macromolecules* **24**, No. 9, 2467–2474 (1991).

**Segregation of Block Copolymer Micelles to Surfaces and Interfaces**, K. R. Shull (IBM Corporation, 650 Harry Road, San Jose, CA 95120), K. I. Kiney (University of Massachusetts, Amherst, MA), E. L. Thomas (Massachusetts Institute of Technology, Cambridge, MA), and E. J. Kramer (Cornell University, Ithaca, NY), *Macromolecules* **24**, No. 10, 2748–2751 (1991).

**Dynamics of (Micro)Phase Separation During Fast, Bulk Copolymerization: Some Synchrotron SAXS Experiments**, A. J. Ryan (University of Manchester, Grosvenor Street, Manchester M1 7HS, United Kingdom), W. R. Willkomm (Dow Chemical Company, Freeport, TX), T. B. Bergstrom (Northwestern University, Evanston, IL), C. W. Macosko, J. T. Koberstein, C. C. Yu (University of Connecticut, Storrs, CT), and T. P. Russell (IBM, San Jose, CA), *Macromolecules* **24**, No. 10, 2883–2889 (1991).

**Segregation of Low Molecular Weight Symmetrical Diblock Copolymers at the Interface of High Molecular Weight Homopolymers**, P. F. Green (Sandia National Laboratories, Albuquerque, NM 87195) and T. P. Russell (IBM, San Jose, CA), *Macromolecules* **24**, No. 10, 2931–2935 (1991).

**Time-of-Flight Static SIMS Study of Imidization in Pyromellitic Dianhydride-4,4'-Oxydianiline Polyimide Films**, B. N. Eldridge, C. Feger, M. J. Goldberg, W. Reurter, and G. J. Scilla (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Macromolecules* **24**, No. 11, 3209–3214 (1991).

**Dielectric Relaxation Studies of Poly(4-hydroxybenzoic Acid) and Copolyesters Based on 4-hydroxybenzoic Acid and 6-hydroxy-2-naphthoic Acid**, D. S. Kalika and D. Y. Yoon (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **24**, No. 11, 3404–3412 (1991).

**Structural, Dielectric, and Rheological Characterization of Thermotropic Liquid Crystalline Copolyesters Based on 4-hydroxybenzoic Acid, 4,4'-Dihydroxybiphenyl, Terephthalic Acid, and Isophthalic Acid**, D. S. Kalika, D. Y. Yoon, P. Iannelli, and W. Parrish (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **24**, No. 11, 3413–3422 (1991).

**Studies of Chain Conformation Kinetics in Poly(di-*n*-alkylsilanes) by Spectroscopic Methods. 4. Piezochromism in Symmetrical Poly(di-*n*-alkylsilanes)**, K. Song (Hoechst Celanese Research Division, Summit, NJ 07901), R. D. Miller, G. M. Wallraff, and J. F. Rabolt (IBM, San Jose, CA), *Macromolecules* **24**, No. 14, 4084–4088 (1991).

**Imide-Aryl Ether Phenylquinoxaline Block Copolymers**, J. L. Hedrick, J. W. Labadie, and T. P. Russell (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Macromolecules* **24**, No. 16, 4559–4566 (1991).

**Rheological and Rheoptical Studies of Poly(alkylsilanes)**, W. E. Rochefor, W. E. Heffner, D. S. Pearson (University of California, Santa Barbara, CA 93106), R. D. Miller, and P. M. Cotts (IBM, San Jose, CA), *Macromolecules* **24**, No. 17, 4861–4864 (1991).

**Surface Segregation in Binary Polymer Mixtures: A Lattice Model**, A. Hariharan, S. K. Kumar (Pennsylvania State University, University Park, PA 16802), and T. P. Russell (IBM, San Jose, CA), *Macromolecules* **24**, No. 17, 4909–4917 (1991).

**Preparation of Oriented Multilayers of Poly(silane)s by the Langmuir-Blodgett Technique**, F. W. Embs, G. Wegner, D. Neher, P. Albouy (Max-Planck-Institut für Polymerforschung, Ackermannweg 10, D-6500 Mainz, Federal Republic of Germany), R. D. Miller, C. G. Willson (IBM, San Jose, CA), and W. Schrepp (BASF AG, Ludwigstafeln, Federal Republic of Germany), *Macromolecules* **24**, No. 18, 5068–5075 (1991).

**A Lattice Model for Interphases in Binary Semicrystalline Amorphous Polymer Blends II. Effects of Tight Fold Energy**, S. K. Kumar (Pennsylvania State University, University Park, PA 16802) and D. Y. Yoon (IBM, San Jose, CA), *Macromolecules* **24**, No. 19, 5414–5420 (1991).

**Conformational Transition Studies of Organosilane Polymers by Light and Neutron Scattering**, P. Shukla, P. M. Cotts, R. D. Miller, T. P. Russell, B. A. Smith, G. M. Wallraff, M. Baier (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and P. Thyagarajan (IPNS, Argonne, IL), *Macromolecules* **24**, No. 20, 5606–5613 (1991).

**Width of Homopolymer Interfaces in the Presence of Symmetric Diblock Copolymers**, T. P. Russell, A. Menelle (IBM Corporation, 650 Harry Road, San Jose, CA 95120), W. A. Hamilton, G. S. Smith (Los Alamos National Laboratory, Los Alamos, NM), S. K. Satija, and C. F. Majkrzak (National Institute of Standards and Technology, Gaithersburg, MD), *Macromolecules* **24**, No. 20, 5721–5726 (1991).

**Cholesterol of Myelin Is the Determinant of Gray-White Contrast in MRI of Brain**, S. H. Koenig (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Magnetic Resonance in Medicine* **20**, No. 2, 285–291 (1991).

**New Photoresists Based on Poly(trans-1-2-Cyclohexylene Disocyanate)**, R. Zentel (University of Dusseldorf, University Strasse 1, D-4000 Dusseldorf 1, Federal Republic of Germany) and C. G. Willson (IBM, San Jose, CA), *Makromolekulare Chemie—Rapid Communications* **12**, No. 8, 513–516 (1991).



**Photoablation Experiments of Thin Polysilane-Films Prepared by the Langmuir-Blodgett-Kuhn Technique**, M. Sawodny (Max-Planck-Institut für Polymerforschung, Postfach 3148, D-6500 Mainz, Federal Republic of Germany), F. Embs, R. D. Miller, F. Aussenegg (Graz University, Graz, Austria), J. Stumpe (Humboldt University, Berlin, Federal Republic of Germany), G. Wagner, and W. Knoll (IBM, San Jose, CA), *Makromolekulare Chemie—Macromolecular Symposia* **46**, 235–239 (1991).

**Viscoelastic Properties of Thin Films Probed with a Quartz Crystal Resonator**, D. Johannsmann (Max-Planck-Institut für Polymerforschung, Postfach 3148, D-6500 Mainz, Federal Republic of Germany), F. Embs, C. G. Willson, G. Wegner, and W. Knoll (IBM, San Jose, CA), *Makromolekulare Chemie—Macromolecular Symposia* **46**, 247–251 (1991).

**Molecular Arrangements and Conformations of Chain Molecules Near Impenetrable Surfaces**, M. Vacatello (Naples University, Via Mezzocannone 4, I-80134 Naples, Italy) and D. Y. Yoon (IBM, San Jose, CA), *Makromolekulare Chemie—Macromolecular Symposia* **48-9**, 349–361 (1991).

**An Extensible Visual Environment for Construction and Analysis of Hierarchically Structured Models of Resource Contention Systems**, K. J. Gordon (University of Massachusetts, Amherst, MA 01003), R. F. Gordon (IBM, Yorktown Heights, NY), J. F. Kurose (University of Massachusetts, Amherst, MA), and E. A. Macnair (IBM, Yorktown Heights, NY), *Management Science* **37**, No. 6, 714–732 (1991).

**New Layered Perovskites in the Sr–Ru–O System: A Transmission Electron Microscope Study**, T. Williams (CSIRO, Locked Bag 33, Clayton, Victoria 3168, Australia), F. Lichtenberg (IBM, Rüschlikon, Switzerland), A. Reller (University of Zürich, Zürich, Switzerland), and G. Bednorz (IBM, Rüschlikon, Switzerland), *Materials Research Bulletin* **26**, No. 8, 763–770 (1991).

**Metastable Phase Formation in Thin Film Reactions**, K. N. Tu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Materials Science and Engineering A* **134**, 1244–1247 (1991).

**Preparation of Amorphous Carbon Films as Protective Layer by FTS System**, T. Kawanabe (IBM Japan, 1, Kiri-hara-cho, Fujisawa-shi, Kanagawa 252, Japan), T. Takahashi (Toyama University, Toyama, Japan), Y. Hoshi (Tokyo Institute of Polytechnics, Kanagawa, Japan), and M. Naoe (Tokyo Institute of Technology, Tokyo, Japan), *Materials Science and Engineering A* **134**, 1296–1300 (1991).

**Control of Morphology and Crystallinity of Chromium Sputtered Film**, T. Kawanabe (IBM Japan, 1, Kiri-hara-cho, Fujisawa-shi, Kanagawa 252, Japan), J. Park, and M. Naoe (Tokyo Institute of Technology, Tokyo, Japan), *Materials Science and Engineering A* **134**, 1305–1308 (1991).

**Dynamic Interactions in the Physical Properties of Magnetron Deposition Systems**, S. M. Rosnagel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Materials Science and Engineering A* **140**, 510–516 (1991).

**Role of Molecular Beam Epitaxy in the Optoelectronic Field**, H. P. Meier (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Materials Science and Engineering B* **9**, Nos. 1–3, 77–81 (1991).

**Thermally Stimulated Current and Photorefractivity of Bismuth Silicon-Oxide and Bismuth Germanium**, D. Just and T. Takamori (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Materials Science and Engineering B* **9**, No. 4, 469–474 (1991).

**Epitaxial Growth of Transition-Metal Silicides on Silicon**, L. J. Chen (National Tsing Hua University, Hsinchu 30043, Taiwan) and K. N. Tu (IBM, Yorktown Heights, NY), *Materials Science Reports* **6**, No. 2–3, 53–140 (1991).

**Converge of Quasi-Newton Matrices Generated by the Symmetric Rank One Update**, A. R. Conn (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), N. I. M. Gould (Rutherford Appleton, Laboratory, Chilton, United Kingdom), and P. L. Toint (Universitaires Notre Dame de la Paix, Namur, Belgium), *Mathematical Programming* **50**, No. 2, 177–195 (1991).

**Linear Programming with Spheres and Hemispheres on Objective Vectors**, B. C. Eaves (Stanford University, Stanford, CA 94305), A. J. Hoffman (IBM, Yorktown Heights, NY), and H. Hu (Stanford University, Stanford, CA), *Mathematical Programming* **51**, No. 1, 1–16 (1991).

**Exact Computation of Optimal Inventory Policies over an Unbounded Horizon**, R. Hassin (Tel Aviv University, Tel Aviv 69978, Israel) and N. Megiddo (IBM, San Jose, CA), *Mathematics of Operations Research* **16**, No. 3, 534–546 (1991).

**On Linear Dependence Relations for Integer Translates of Compactly Supported Distributions**, W. Dahmen (Freie Universität Berlin, W-1000 Berlin, Federal Republic of Germany), R. Q. Jia (Zhejiang University, Hangzhou, China), and C. A. Micchelli (IBM, Yorktown Heights, NY), *Mathematische Nachrichten* **151**, 303–310 (1991).

**Three-Dimensional Reconstruction of Arteries from Biplane Angiograms**, S. T. Rake (IBM England, Winchester, United Kingdom), *Medical Informatics* **16**, No. 2, 195–212 (1991).

**Stationary Subdivision**, A. S. Cavaretta (Kent State University, Kent, OH 44242), W. Dahmen (Free University, Berlin, Federal Republic of Germany), and C. A. Micchelli (IBM, Yorktown Heights, NY), *Memoirs of the American Mathematical Society* **93**, No. 453, 1–186 (1991).

**Electron Microscopy of Transformation Dislocations at Interphase Boundaries**, R. Bonnet, M. Loubradolo (CNRS, 38402 Saint Martin D'Heres, France), A. Catana (IBM, Rüschlikon, Switzerland), and P. Stadelmann (École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland), *Metallurgical Transactions* **22A**, No. 6, 1145–1158 (1991).

**Atomic Structure of the Crystalline/Amorphous Interface in a Directionally Crystallized Pd<sub>3</sub>Si<sub>2</sub>O Alloy**, W. H. Brearley (IBM Corporation, Route 52, Hopewell Junction, NY 12533), P.-C. Shieh, and J. M. Howe (Carnegie Mellon University, Pittsburgh, PA), *Metallurgical Transactions* **22A**, No. 6, 1287–1298 (1991).

**The High-Temperature Work Function Behavior of Polycrystalline Osmium**, R. N. Wall (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and D. L. Jacobson (Arizona State University, Tempe, AZ), *Metallurgical Transactions* **22A**, No. 7, 1609-1613 (1991).

**Oxidation Kinetics of a Pb-30 At Pct in Alloy**, M.-X. Zhang, Y. A. Chang (University of Wisconsin, Madison, WI 53706), and V. C. Marcotte (IBM, Hopewell Junction, NY), *Metallurgical Transactions* **22A**, No. 8, 1865-1869 (1991).

**Ultrasensitive Chemically Amplified Resist Systems**, H. Sachdev, W. Brunsvold, R. Kwong, W. Montgomery, W. Moreau, K. Welsh, R. Kvitik, and W. Conley (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Microelectronic Engineering* **13**, No. 1-4, 19-22 (1991).

**Comparison of Vapor and Liquid Phase Silylation Processes of Photoresists**, E. Babich, J. Paraszczak, J. Gelorme, R. McGouey, M. Brady (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), R. Nunes, and R. Smith (IBM, Hopewell Junction, NY), *Microelectronic Engineering* **13**, No. 1-4, 47-50 (1991).

**Progress in E-Beam Mask Making for Optical and X-Ray Lithography**, H. C. Pfeiffer and T. R. Groves (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Microelectronic Engineering* **13**, No. 1-4, 141-149 (1991).

**Lithographic Performance of an El-3 System at 0.25- $\mu$ m Groundrules**, T. H. Newman, M. G. R. Thomson, and F. J. Hohn (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microelectronic Engineering* **13**, No. 1-4, 151-156 (1991).

**Analysis of Large Electron Optical Systems with Many Interacting Optical Elements**, P. F. Petric and V. D. Beck (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Microelectronic Engineering* **13**, No. 1-4, 161-164 (1991).

**A Study of Proximity Effects at High Electron-Beam Voltages for X-Ray Mask Fabrication Part 1. Additive Mask Processes**, M. G. Rosenfield, S. A. Rishton, D. P. Kern, D. E. Seeger (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and C. A. Whiting (IBM, Essex Junction, VT), *Microelectronic Engineering* **13**, No. 1-4, 165-172 (1991).

**Thermal Effects in Silicon Membrane Masks under E-Beam Irradiation**, K. Meissner (IBM Germany, Max Eyth Strasse 6, D-7032 Sindelfingen, Federal Republic of Germany), *Microelectronic Engineering* **13**, No. 1-4, 177-180 (1991).

**X-Ray Mask Distortion Due to Radiation Damage**, R. E. Acosta (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microelectronic Engineering* **13**, No. 1-4, 259-262 (1991).

**Illumination Effects on Image Formation in X-ray Proximity Printing**, Y. Vladimirovsky and J. R. Maldonado (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Microelectronic Engineering* **13**, No. 1-4, 343-346 (1991).

**Light Scattering Properties of X-Ray Lithography Mask Substrates**, J. R. Maldonado, Y. Vladimirovsky (IBM Corporation, Route 52, Hopewell Junction, NY 12533), O. Vladimirovsky, I. Babich, R. Fuentes, D. Guarnieri, S. W. Whitehair, and J. Cuomo (IBM, Yorktown Heights, NY), *Microelectronic Engineering* **13**, No. 1-4, 347-350 (1991).

**Mix and Match EBP/Optical Lithography of 1 MBIT Chips**, W. Zapka (IBM Germany, Max Eyth Strasse 6, D-7032 Sindelfingen, Federal Republic of Germany), S. Sonchik (IBM, Essex Junction, VT), U. Behringer, W. Haug, K. Meissner (IBM Germany, Sindelfingen, Federal Republic of Germany), S. Silverman (IBM, Essex Junction, VT), W. Ziemlich, H. Bohlen (IBM Germany, Sindelfingen, Federal Republic of Germany), and W. Smith (IBM, Essex Junction, VT), *Microelectronic Engineering* **13**, No. 1-4, 347-350 (1991).

**The Electron Beam Proximity Printing Lithography, a Candidate for the 0.35 and 0.35 Micron Chip Generations**, U. Behringer, W. Haug, K. Meissner, W. Ziemlich, H. Bohlen, T. Bayer, W. Kulcke (IBM Germany, Max Eyth Strasse 6, D-7032 Sindelfingen, Federal Republic of Germany), H. Rothuizen, G. Sasso, and P. Vettiger (IBM, Rüschlikon, Switzerland), *Microelectronic Engineering* **13**, No. 1-4, 361-364 (1991).

**Fabrication of Sub-100nm Dual-Gate MODFETS with Enhanced Performance**, K. Y. Lee, K. Ismail, D. P. Kern, and J. M. Hong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microelectronic Engineering* **13**, No. 1-4, 377-380 (1991).

**Periodic Conductance Resonances in One-Dimensional GaAs Channels with Nanoconstrictions**, S. J. Wind (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), U. Meirav, and M. A. Kastner (Massachusetts Institute of Technology, Cambridge, MA), *Microelectronic Engineering* **13**, No. 1-4, 411-414 (1991).

**Conducting Polyaniline: Removable SEM Discharge Layer**, M. Angelopoulos, J. M. Shaw (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), M. A. Lecorre, and M. Tissier (IBM France, Corbeil, France), *Microelectronic Engineering* **13**, No. 1-4, 515-518 (1991).

**Metrology Using Differential Phase Contrast Microscopy**, J. C. Shaw (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microelectronic Engineering* **13**, No. 1-4, 527-530 (1991).

**Laser Cleaning of Wafer Surfaces and Lithography Masks**, W. Zapka (IBM Germany, Max Eyth Strasse 6, D-7032 Sindelfingen, Federal Republic of Germany), A. C. Tam (IBM, San Jose, CA), and W. Ziemlich (IBM Germany, Sindelfingen, Federal Republic of Germany), *Microelectronic Engineering* **13**, No. 1-4, 547-550 (1991).

**Electron Beam Tester Measurements of Switching Noise in VLSI Circuits**, K. A. Jenkins and D. F. Heidel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microelectronic Engineering* **14**, No. 2, 109-120 (1991).

**Design of a Custom DRAM Storage Unit Coupled to I486™**, J. L. Peter (IBM France, F-06610 La Gaude, France), *Microprocessing and Microprogramming* 32, Nos. 1-5, 179-181 (1991).

**CMOS Implementation of the IBM ESA/390**, N. Roethe (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 207 (1991).

**A CMOS Implementation of the ESA/390 Mainframe Architecture**, N. Roethe and U. Wille (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 209-214 (1991).

**Data Consistency in a Multiprocessor System with Store in Cache Concept**, G. Doettling (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 215-219 (1991).

**The Clock, Test and Maintenance Control Chip of the IBM ES/9221**, D. Schmunkamp and C. W. Starke (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 221-226 (1991).

**A VLSI-CAD System for Efficient Design of CMOS/390 Processor**, A. Tietz and J. Koehl (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 227-234 (1991).

**Array Processor for LS FIR System Identification**, S. S. Nikoaidis, O. G. Koufopavlou, S. Theodoridis (University of Patras, Patras, Greece), and C. E. Goutis (IBM, Yorktown Heights, NY), *Microprocessing and Microprogramming* 32, Nos. 1-5, 557-563 (1991).

**Control Policies for Interconnected Distributed Systems Via an Hippi Switch**, I. Chlamtac, A. Ganz (University of Massachusetts, Amherst, MA 01003), and M. G. Kienzie (IBM, Yorktown Heights, NY), *Microprocessing and Microprogramming* 32, Nos. 1-5, 575-582 (1991).

**VLSI Testing and Modeling 1**, H. Painke (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 773-774 (1991).

**VLSI Testing and Fault Modeling**, H. Painke (IBM Germany, Böblingen, Federal Republic of Germany), *Microprocessing and Microprogramming* 32, Nos. 1-5, 851 (1991).

**Current Trends for EELS Studies in Physics**, P. E. Batson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Microscopy Microanalysis Microstructures* 2, Nos. 2-3, 395-402 (1991).

**The Symmetry Property of a 90° Twisted Nematic Liquid-Crystal Cell**, A. Lien (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), H. Takano, S. Suzuki, and H. Uchida (IBM Japan, Kanagawa, Japan), *Molecular Crystals and Liquid Crystals* 198, 37-49 (1991).

**Transitions to Liquid-Crystalline Phases in Tri-Block Oligomers  $F(CF_2)_nN(CH_2)_m(CF_2)_nF$** , C. Viney (University of Washington, Seattle, WA 98195), R. J. Twieg, B. R. Gordon, and J. F. Rabolt (IBM, San Jose, CA), *Molecular Crystals and Liquid Crystals* 198, 285-289 (1991).

**Factors Affecting Microstructural Scale in Liquid-Crystalline Materials**, C. M. Dannels, C. Viney (University of Washington, Seattle, WA 98195), R. J. Twieg, and M. Y. Chang (IBM, San Jose, CA), *Molecular Crystals and Liquid Crystals* 198, 341-350 (1991).

**Computation of the Transport Coefficients of Dense Fluid Neon, Argon, Krypton and Xenon by Molecular Dynamics**, M. F. Pas (IBM Corporation, Neighborhood Road, Kingston, NY 12401) and B. J. Zwolinski (Texas A&M University, College Station, TX), *Molecular Physics* 73, No. 3, 471-481 (1991).

**Computation of the Transport Coefficients of Binary Mixtures of Argon-Krypton, Krypton-Xenon, and Argon-Xenon by Molecular Dynamics**, M. F. Pas (IBM Corporation, Neighborhood Road, Kingston, NY 12401) and B. J. Zwolinski (Texas A&M University, College Station, TX), *Molecular Physics* 73, No. 3, 483-494 (1991).

## N

**An Atomic Switch Realized with the Scanning Tunneling Microscope**, D. M. Eigler, C. P. Lutz, and W. E. Rudge (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Nature* 352, No. 6336, 600-603 (1991).

**Observation of Speckle by Diffraction with Coherent X-rays**, M. Sutton (McGill University, Montreal H3A 2T8, Quebec, Canada), S. G. J. Mochrie, T. Greytak (Massachusetts Institute of Technology, Cambridge, MA), S. E. Nagler (University of Florida, Gainesville, FL), L. E. Berman (Brookhaven National Laboratory, Upton, NY), G. A. Held, and G. B. Stephens (IBM, Yorktown Heights, NY), *Nature* 352, No. 6336, 608-610 (1991).

**Cellular Automaton Models of the CA<sub>3</sub> Region of the Hippocampus**, E. Pytte, G. Grinstein, and R. D. Traub (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Network-Computation in Neural Systems* 2, No. 2, 149-167 (1991).

**How Should Prolog Computation Be Represented for Practical Use?**, M. Numao, S. Morishita, and H. Maruyama (IBM Tokyo, Chiyoda Ku, Tokyo 102, Japan), *New Generation Computing* 8, No. 2, 95-112 (1990).

**A Five MeV RBS Microprobe for Materials Analysis in the Semiconductor Industry**, G. M. Klody, J. B. Schroeder, J. A. Ferry (National Electrostat Corporation, Middleton, WI 53562), T. J. Pollock, and E. D. Adams (IBM, Essex Junction, VT), *Nuclear Instruments & Methods in Physics Research B* 56-7, 704-707 (1991).

**$C_{12}(\alpha, \alpha)C_{12}$  Resonance as a Tool for Quantitative Analysis**, P. Revesz, J. Li, G. Vizkelethy, J. W. Mayer (Cornell University, Ithaca, NY 14853), L. J. Matienzo, and F. Emmi (IBM, Endicott, NY), *Nuclear Instruments & Methods in Physics Research B* 58, No. 2, 132-135 (1991).

**On the Gas-Dynamic of Laser-Pulse Sputtering of Polymethylmethacrylate**, B. Braren, K. G. Casey, and R. Kelly (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Nuclear Instruments & Methods in Physics Research B* **58**, No. 3-4, 463-472 (1991).

**Adhesion Improvement of Au on GaAs Using Ion-Beam Assisted Deposition**, A. J. Kellock, J. E. E. Baglin (IBM Corporation, 650 Harry Road, San Jose, CA 95120), T. T. Bardin, and J. G. Pronko (Lockheed, Palo Alto, CA), *Nuclear Instruments & Methods in Physics Research B* **59**, 249-253 (1991).

**On the Application of Darken Analysis to Ion Beam Mixing**, R. Kelly (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and A. Miotello (Consorzio, Trent, Italy), *Nuclear Instruments & Methods in Physics Research B* **59**, 517-522 (1991).

**Channeling Effect of P-Implantation of Si(100)**, N. Yu (University of Houston, Houston, TX 77204), W. K. Chu, B. Patnaik, N. Parikh, S. Corcoran (University of North Carolina, Chapel Hill, NC), C. Kirschbaum (Charles Evans & Associates, Redwood City, CA), and K. Varahramyan (IBM, Essex Junction, VT), *Nuclear Instruments & Methods in Physics Research B* **59**, 1061-1066 (1991).

**A Finite-Size Scaling Study of the Diamond 3D 3Q Potts-Model**, M. Bernaschi (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), M. Guagnelli (University of Rome, Rome, Italy), E. Marinari (National Institute of Nuclear Physics, Rome, Italy), and S. Patarnello (IBM Italy, Rome, Italy), *Nuclear Physics B* **360**, No. 2-3, 283-296 (1991).

## O

**Priority Queues with Batch Poisson Arrivals**, H. Takagi (IBM Japan, 5-11 Sanban-cho, Chiyoda-ku, Tokyo 102, Japan) and Y. Takahashi (NTT Communications Switching Laboratories, Tokyo, Japan), *Operations Research Letters* **10**, No. 4, 225-232 (1991).

**A Unified Approach to Interior Point Algorithms for Linear Complementary Problems: A Summary**, M. Kojima (Tokyo Institute of Technology, Okayama, Meguro Ku, Tokyo 152, Japan), N. Megiddo, T. Noma, and A. Yoshise (IBM, San Jose, CA), *Operations Research Letters* **10**, No. 5, 247-254 (1991).

**Normal-Incidence Soft X-Ray Telescopes**, E. Spiller, R. A. McCorkle, J. S. Wilczynski (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), L. Golub, G. Nystrom (Center for Astrophysics, Cambridge, MA), P. Z. Takacs (Brookhaven National Laboratory, Upton, NY), and C. Welch (Lockheed Missile & Space Company, Las Cruces, NM), *Optical Engineering* **30**, No. 8, 1109-1115 (1991).

**Effect of Knife-Edge Skew on Modulation Transfer Function Measurements of Charge-Coupled Device Imagers Employing a Scanning Knife Edge**, H.-S. Wong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Optical Engineering* **30**, No. 9, 1394-1398 (1991).

**Dark Soliton Trains Formed by Visible Pulse Collisions in Optical Fibers**, J. E. Rothenberg (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Optics Communications* **82**, No. 1-2, 107-111 (1991).

## P

**A Parallelization Technique for the Speedup of Configuration Interaction Computing**, N. Honjou (IBM Japan Ltd., 18-24-7 Tsukiji, Tokyo 104, Japan), K. Ohtsuki, M. Sekiya, and F. Sasaki (Hokkaido University, Sapporo, Japan), *Parallel Computing* **17**, No. 2-3, 297-310 (1991).

**Mean Delay Approximations for Polling Systems with Batch Poisson Input**, L. F. de Moraes (Instituto Politecnico do Rio de Janeiro, Nova, Friburgo, Brazil) and S. Fuhrmann (IBM, Rüschlikon, Switzerland), *Performance Evaluation* **12**, No. 3, 147-156 (1991).

**Fabrication and Electrical Activity of Twist Boundaries in Silicon**, G. C. Perreault (Cypress Semiconductor, 3901 North First Street, San Jose, CA 95110), S. L. Hyland (IBM, Manassas, VA), and D. G. Ast (Cornell University, Ithaca, NY), *Philosophical Magazine A* **64**, No. 3, 587-596 (1991).

**A Note on the Linear-Parabolic Law of Phase Formation**, S. L. Zhang (Institut for Mikroelektronik, Box 1084, 164 21 Kista, Sweden) and F. M. d'Heurle (IBM, Yorktown Heights, NY), *Philosophical Magazine A* **64**, No. 3, 619-627 (1991).

**Twin Intersections in Silicon on Sapphire**, J. L. Batstone (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Philosophical Magazine B* **63**, No. 5, 1037-1050 (1991).

**Overstated Claims**, W. E. Moerner (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Photonics Spectra* **25**, No. 8, 16 (1991).

**Anyon Superconductivity and the Fractional Quantum Hall Effect**, D.-H. Lee (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physica B* **169**, No. 1-4, 37-44 (1991).

**Type-II Superconductors in a Magnetic Field: Fluctuations, Pinning and Transport**, M. P. A. Fisher (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. S. Fisher (Harvard University, Cambridge, MA), and D. A. Huse (AT&T, Murray Hill, NJ), *Physica B* **169**, No. 1-4, 85-90 (1991).

**Spin Dynamics and Dimensionality in Diluted Magnetic Semiconductors**, D. D. Awschalom and M. R. Freeman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physica B* **169**, No. 1-4, 285-292 (1991).

**Present Status and Future of DC SQUIDS Made from High- $T_c$  Superconductors**, R. H. Koch, B. Oh, H. Olddon, R. Robertazi, W. J. Gallagher, R. B. Laibowitz, A. Gupta, and W. Y. Lee (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physica B* **169**, No. 1-4, 414 (1991).

**Low-Temperature Scanning Electron Microscopy Studies of Superconducting Thin Films and Josephson Junctions**, R. Gross, T. Doderer, R. P. Huebener, F. Kober, D. Koelle, C. Kruelle (University of Tübingen, Morgenstelle 14, Tübingen 1, Federal Republic of Germany), J. Mannhart (IBM, Rüschlikon, Switzerland), B. Mayer, D. Quenter, and A. Ustinov (Institute of Solid State Physics, Chernogolovka, USSR), *Physica B* **169**, No. 1-4, 415-421 (1991).

**Hydrogen in Crystalline and Amorphous Silicon: A First Principles Molecular Dynamics Study**, F. Buda (Ohio State University, 174 West 18th Avenue, Columbus, OH 43210), G. L. Chiarotti, R. Car (SISSA, Trieste, Italy), and M. Parrinello (IBM, Rüschlikon, Switzerland), *Physica B* **170**, No. 1-4, 98-104 (1991).

**Pair Correlation Effects in Heavy Fermions**, B. A. Jones (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physica B* **171**, No. 1-4, 53-60 (1991).

**Evidence for Unconventional Superconductivity in Single Crystals of the Antiferromagnetic Heavy-Electron Compound  $\text{URu}_2\text{Si}_2$** , M. B. Maple, Y. Dalichaouch, B. W. Lee, C. L. Seaman, P. K. Tsai (University of California, La Jolla, CA 92093), P. E. Armstrong, Z. Fisk (Los Alamos National Laboratory, Los Alamos, NM), C. Rossel (IBM, Rüschlikon, Switzerland), and M. S. Torikachvili (San Diego State University, San Diego, CA), *Physica B* **171**, No. 1-4, 219-225 (1991).

**Non-logarithmic Magnetic Relaxation in  $\text{Bi}_{2.2}\text{Sr}_{1.7}\text{CaCu}_2\text{O}_8$  Single Crystals; Evidence for Collective Flux Pinning**, P. Svedlindh (University Uppsala, P.O. Box 534, S-751 21 Uppsala, Sweden), C. Rossel (IBM, Rüschlikon, Switzerland), K. Niskanen, P. Norling, P. Nordblad, L. Lundgren (University Uppsala, Uppsala, Sweden), and G. V. Chandras (IBM, Yorktown Heights, NY), *Physica C* **176**, No. 4-6, 336-346 (1991).

**Growth and Characterization of High-Quality Single Crystals of  $\text{R}_{2-x}\text{Ce}_x\text{CuO}_{4-y}$  ( $\text{R} = \text{Nd, Sm}$ )**, J. L. Peng, Z. T. Li (University of Maryland, College Park, MD 20742), and R. L. Greene (IBM, Yorktown Heights, NY), *Physica C* **177**, No. 1-3, 79-85 (1991).

**Two-Dimensional Character of the Magnetoresistance in  $\text{Nd}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-\delta}$  Thin Films**, A. Kussmaul, J. S. Moodera, P. M. Tedrow (Francis Bitter National Magnet Laboratory, Cambridge, MA 02139), and A. Gupta (IBM, Yorktown Heights, NY), *Physica C* **177**, No. 4-6, 415-420 (1991).

**Search for Superconductivity in Analogues of  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ :  $\text{Sr}_2\text{Ln}_x\text{VO}_4$  ( $\text{Ln} = \text{La, Ce, Pr, Nd, Eu}$ )**, F. Deslandes (Cryospace, PB2, F-78133 Les Mureaux, France), A. I. Nazzari, and J. B. Torrance (IBM, San Jose, CA), *Physica C* **179**, No. 1-3, 85-90 (1991).

**Dimensional Crossover and Finite Size Effects in Superconducting Films**, T. Schneider and J.-P. Locquet (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physica C* **179**, No. 1-3, 125-130 (1991).

**The Thermal Activation Compensation Effect and Isokinetic Temperature Relation to Physical Mod**, A. Peled (Tel Aviv University, IL-58368 Holon, Israel) and L. B. Schein (IBM, San Jose, CA), *Physica Scripta* **44**, No. 3, 304-309 (1991).

**Perspectives in High-Temperature Superconductivity**, K. A. Müller (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physica Scripta* **T35**, 9-10 (1991).

**Si(111),  $(2 \times 1)$  Reconstruction and Surface Phonons from Ab-initio Molecular Dynamics**, F. Ancilotto, W. Andreoni (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), A. Selloni, R. Car, and M. Parrinello (International School for Advanced Studies, Trieste, Italy), *Physica Scripta* **T35**, 21-25 (1991).

**Computation on Parallel Message-Passing Computers**, J. Petersen (IBM Norway, Thormøhlensgate 55, N-5000 Bergen, Norway), *Physica Scripta* **T38**, 33 (1991).

**Lattice Boltzmann Scheme for Two-Dimensional Magnetohydrodynamics**, S. Succi (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), M. Vergassola (Università "La Sapienza," Rome, Italy), and R. Benzi (Università "Tor Vergata," Rome, Italy), *Physical Review A* **43**, No. 8, 4521-4524 (1991).

**Classical Impulse Approximation for the Electron Loss from  $\text{H}(\text{Is})$  or  $\text{H}^-$  Projectiles Passing Through Various Gas Targets**, K. Riesseltmann, L. W. Anderson, L. Durand (University of Wisconsin, Madison, WI 53706), and C. J. Anderson (IBM, Yorktown Heights, NY), *Physical Review A* **43**, No. 11, 5934-5945 (1991).

**1/f Noise for Driven Interfaces**, J. Krug (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review A* **44**, No. 2, R801-R804 (1991).

**Cross-Quadrature Modulation with the Raman-Induced Kerr Effect**, M. D. Levenson (IBM Corporation, 650 Harry Road, San Jose, CA 95120), M. J. Holland, D. F. Walls (University of Auckland, Auckland, Australia), P. J. Manson, P. T. H. Fisk (IBM, San Jose, CA), and H. A. Bachor (Australian National University, Canberra, Australia), *Physical Review A* **44**, No. 3, 2023-2035 (1991).

**Monte Carlo Simulations of Space-Charge-Limited Ion Transport Through Collisional Plasma Sheaths**, R. T. Farouki, S. Hamaguchi, and M. Dalvie (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review A* **44**, No. 4, 2664-2681 (1991).

**Ion Distribution Function in a Weakly Collisional Sheath**, S. Hamaguchi, R. T. Farouki, and M. Dalvie (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review A* **44**, No. 6, 3804-3821 (1991).

**Surface Phonons and Dipole Activity of  $\text{Si}(111)2 \times 1$  from Ab Initio Calculations**, F. Ancilotto, A. Selloni (International School for Advanced Study, Strada Costiera 11, 34014 Trieste, Italy), W. Andreoni (IBM, Rüschlikon, Switzerland), S. Baroni, P. Car, and M. Parrinello (International School for Advanced Study, Trieste, Italy), *Physical Review B* **43**, No. 11, 8930-8933 (1991).

**Direct Observation of Anelastic Bond-Orientational Anisotropy in Amorphous  $Tb_{20}Fe_{80}Co_{12}$  Thin Films by X-Ray Diffraction**, X. Yan, M. Hirscher, T. Egami (University of Pennsylvania, Philadelphia, PA 19104), and E. E. Marinero (IBM, San Jose, CA), *Physical Review B* **43**, No. 11, 9300-9303 (1991).

**Interior Contacts for Probing the Equilibrium Between Magnetic Edge Channels in the Quantum Hall Effect**, J. Faist, P. Guéret, and H. P. Meier (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physical Review B* **43**, No. 11, 9332-9335 (1991).

**Stress-Induced Layer-by-Layer Growth of Ge on Si(100)**, J. Tersoff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 11, 9377-9380 (1991).

**Vacuum-Ultraviolet Spectroscopy of Dialkyl Polysilanes**, F. M. Schellenberg, R. L. Byer (Stanford University, Stanford, CA 94305), R. H. French (E. I. du Pont de Nemours & Company, Wilmington, DE), and R. D. Miller (IBM, San Jose, CA), *Physical Review B* **43**, No. 12, 10008-10011 (1991).

**High-Power, Pulsed-Microwave Measurements of Critical Currents in Thin Films of Y-Ba-Cu-O and Nb**, N. S. Shiren, R. B. Laibowitz, T. G. Kazyaka, and R. H. Koch (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 13-A, 10478-10481 (1991).

**Electronic States in Rare-Earth 1:2:3 Oxides: Photoemission and Raman Studies**, I.-S. Yang, A. G. Schrott, C. C. Tsuei, G. Burns, and F. H. Dacol (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 13-A, 10544-10547 (1991).

**Observation of a Vortex-Glass Phase in Polycrystalline  $YBa_2Cu_3O_{7-x}$  in a Magnetic Field**, T. K. Worthington, E. Olsson, C. S. Nichols, T. M. Shaw, and D. R. Clarke (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 13-A, 10578-10481 (1991).

**Electron Paramagnetic Resonance of  $Cu^{2+}$  Ions in the Tetragonal Perovskite  $LaCuO_{3-\delta}$** , F. Mehran, T. R. McGuire, J. F. Bringley, and B. A. Scott (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 13-B, 11411-11414 (1991).

**Temperature and Doping-Concentration Dependence of the Oscillatory Properties of the Photoreflectance Spectra from GaAs Grown by Molecular-Beam Epitaxy**, C. R. Lu, J. R. Anderson, D. R. Stone, W. T. Beard, R. A. Wilson (University of Maryland, College Park, MD 20742), T. F. Kuech, and S. L. Wright (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 14, 11791-11797 (1991).

**Structural and Electronic Properties of the Bi/GaP(110) Interface**, M. Prietsch, A. Samsavar, and R. Ludeke (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 14, 11850-11856 (1991).

**Observation of Franz-Keldysh Oscillations in the Stress-Modulated Spectra of (001) n-Type GaAs**, Y. C. Yin, D. Yan, F. H. Pollak (Brooklyn College of the City University of New York, Brooklyn, NY 11210), G. D. Pettit, and J. M. Woodall (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 14, 12138-12141 (1991).

**Interaction of Alkali Metals with Si(001)- $2\times 1$** , I. P. Batra (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review B* **43**, No. 15, 12322-12334 (1991).

**Magnetic Coupling Through Cr: Study of Spin Polarization in Cr and Film-Growth Effects**, M. Donath, D. Scholl, D. Mauri, and E. Kay (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review B* **43**, No. 16-A, 13164-13171 (1991).

**Exchange Interactions at the Surface of a Ferromagnet**, D. Scholl, M. Donath, D. Mauri, E. Kay (IBM Corporation, 650 Harry Road, San Jose, CA 95120), J. Mathon, R. B. Muniz (City University, London, United Kingdom), and H. C. Siegmann (Swiss Federal Institute of Technology, Zurich, Switzerland), *Physical Review B* **43**, No. 16-B, 13309-13313 (1991).

**Image States at Ferromagnetic Surfaces: Fe(110), (100), (111) and Co(0001)**, F. J. Himpsel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 16-B, 13394-13400 (1991).

**Real-Time Small-Angle X-Ray Scattering Study of the Early Stage of Phase Separation in the  $SiO_2$ -BaO- $K_2O$  System**, G. B. Stephenson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), W. K. Warburton (X-ray Instrumentation Associates, Menlo Park, CA), W. Haller (National Institute of Standards and Technology, Gaithersburg, MD), and A. Bienenstock (Stanford Synchrotron Radiation Laboratory, Stanford, CA), *Physical Review B* **43**, No. 16-B, 13417-13437 (1991).

**In-Plane Transport Properties of Single-Crystal  $R_xCeCuO_{4-y}$  ( $R = Nd, Sm$ )**, S. J. Hagen, J. L. Peng, Z. Y. Li (University of Maryland, College Park, MD 20742), and R. L. Greene (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 16-B, 13606-13609 (1991).

**Evidence for Surface Barriers and Their Effect on Irreversibility and Lower-Critical-Field Measurements in Y-Ba-Cu-O Crystals**, M. Koczykowski (École Polytechnique, 91128 Palaiseau, France), L. I. Burlachkov, Y. Yeshurun (Bar-Ilan University, Ramat-Gan, Israel), and F. Holtzberg (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 16-B, 13707-13710 (1991).

**Scaling of the Hysteretic Magnetic Behavior in  $YBa_2Cu_3O_7$  Single Crystals**, L. Civale, M. W. McElfresh, A. D. Marwick, F. Holtzberg, C. Feild (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), J. R. Thompson, and D. K. Christen (Oak Ridge National Laboratory, Oak Ridge, TN), *Physical Review B* **43**, No. 16-B, 13732-13735 (1991).

**Seebeck Effect in the Mixed State of Epitaxial  $YBa_2Cu_3O_{7-x}$** , H.-C. Ri (Universität Tübingen, D-7400 Tübingen 1, Federal Republic of Germany) and A. Gupta (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 16-B, 13739-13742 (1991).

**Optical Studies of Vertical Ambipolar Transport and Interface Recombination Velocities in  $GaAs/Al_{0.5}Ga_{0.5}As$  Double-Quantum-Well Heterostructures**, H. Hillmer, A. Forchel, T. Khun, G. Mahler (Universität Stuttgart, Pfaffenwaldring 57, D-7000 Stuttgart, Federal Republic of Germany) and H. P. Meier (IBM, Rüschlikon, Switzerland), *Physical Review B* **43**, No. 17, 13992-14000 (1991).



**Quantum-Confined Excitonic States at High Quality Interfaces in GaAs(n Type) AlGa<sub>1-x</sub>As(p Type) Double Heterostructures**, G. D. Gilliland, D. J. Wolford, T. F. Kuech, and J. A. Bradley (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **43**, No. 17, 14251-14254 (1991).

**$\alpha$ -Gallium: A Metallic Molecular Crystal**, X. G. Gong, G. L. Chiarotti (International School for Advanced Studies, Costiera 11, I-34014 Trieste, Italy), M. Parrinello (IBM, Rüschlikon, Switzerland), and E. Tosatti (International School for Advanced Studies, Trieste, Italy), *Physical Review B* **43**, No. 17, 14277-14280 (1991).

**Optically Detected Magnetic Resonance of Group-IV and Group-VI Impurities in AlAs and AlGa<sub>1-x</sub>As with  $x \geq 0.35$** , E. R. Glaser, T. A. Kennedy, B. Molnar, R. S. Sillmon (Naval Research Laboratory, Washington, DC 20375), M. G. Spencer (Howard University, Washington, DC), M. Mizuta (NEC Corporation, Tsukuba, Japan), and T. F. Kuech (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 18, 14540-14556 (1991).

**Fermi-Edge Singularities and Enhanced Magnetoexcitons in the Optical Spectra of GaAs/(Ga,Al)As Single Quantum Wells**, W. Chen, M. Fritze, A. V. Nurmikko (Brown University, Providence, RI 02912), M. Hong, and L. L. Chang (IBM, Yorktown Heights, NY), *Physical Review B* **43**, No. 18, 14738-14741 (1991).

**Excited States of One-Dimensional Excitons in Polysilanes as Investigated by Two-Photon Spectroscopy**, Y. Moritomo, Y. Tokura (University of Tokyo, Tokyo 113, Japan), H. Tachibana, Y. Kawabata (National Chemical Laboratory for Industry, Tsukuba, Ibaraki, Japan), and R. D. Miller (IBM, San Jose, CA), *Physical Review B* **43**, No. 18, 14746-14749 (1991).

**Surfaces of Percolation Clusters in Three Dimensions**, R. M. Bradley (Colorado State University, Fort Collins, CO 80523), P. N. Strenski (IBM, Yorktown Heights, NY), and J. M. Debierre (Université de Nancy, Vandoeuvre-les-Nang, France), *Physical Review B* **44**, No. 1, 76-84 (1991).

**Self-Fields and Critical-Current-Density Anisotropy of High-Temperature Superconductors**, L. W. Conner, A. P. Malozemoff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and I. A. Campbell (Université de Paris-Sud, Orsay, France), *Physical Review B* **44**, No. 1, 403-406 (1991).

**Long-Term Nonlogarithmic Magnetic Relaxation in Single-Crystal YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Superconductors**, J. R. Thompson (Oak Ridge National Laboratory, Oak Ridge, TN 37831), Y. R. Sun (University of Tennessee, Knoxville, TN), and F. Holtzberg (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 1, 458-461 (1991).

**Unoccupied Electronic Band Structure of Na on Cu(111) as Studied by Inverse Photoemission**, R. Dudde, L. S. O. Johansson, and B. Reihl (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physical Review B* **44**, No. 3, 1198-1201 (1991).

**Role of Hydrogen Desorption in the Chemical-Vapor Deposition of Si(100) Epitaxial Films Using Disilane**, J. J. Boland (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 3, 1383-1386 (1991).

**Surface Photovoltage of Ag on Si(111)-7 $\times$ 7 by Scanning Tunneling Microscopy**, D. G. Cahill (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and R. J. Hamers (University of Wisconsin, Madison, WI), *Physical Review B* **44**, No. 3, 1387-1390 (1991).

**Correlation of Deep-Level and Chemically Active Site Densities at Vicinal GaAs(100)-Al Interfaces**, S. Chang, I. M. Vitomirov, L. J. Brillson (Xerox Corporation, 800 Phillips Road, Webster, NY 14580), D. F. Rioux (University of Wisconsin, Madison, WI), P. D. Kirchner, G. D. Pettit, and J. M. Woodall (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 3, 1391-1394 (1991).

**Use of a Two-Frequency AC Bridge to Measure 1/f Noise in Copper Films**, K. P. Rodbell and R. H. Koch (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 4, 1767-1771 (1991).

**Hydrogen Segregation and Trapping in the Al/Si(111) Interface**, J. C. Liu, A. D. Marwick, and F. K. Le Goues (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 4, 1861-1874 (1991).

**Interplay Between Landau and Stark Quantizations in GaAs/Ga<sub>0.65</sub>Al<sub>0.35</sub>As Superlattices**, A. Alexandrou, E. E. Mendez, and J. M. Hong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 4, 1934-1937 (1991).

**Thermal-Vibrational Amplitudes of Silicon Determined by Channeling-Radiation Measurements**, J. O. Kephart (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), B. L. Berman (George Washington University, Washington, DC), R. H. Pantell (Stanford University, Stanford, CA), S. Datz (Oak Ridge National Laboratory, Oak Ridge, TN), R. K. Klein (Advanced Micro Devices, Inc., Sunnyvale, CA), and H. Park (AT&T Bell Laboratories, Murray Hill, NJ), *Physical Review B* **44**, No. 5, 1992-2002 (1991).

**Conduction-Electron Spin Resonance of Na-Cs Alloys in Zeolite Y**, F. Blatter, K. W. Blazey (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), and A. M. Portis (University of California, Berkeley, CA), *Physical Review B* **44**, No. 6, 2800-2802 (1991).

**Electronic Structure of NiO: Correlation and Band Effects**, Z. X. Shen (Stanford University, Stanford, CA 94305), R. S. List (Los Alamos National Laboratory, Los Alamos, MN), D. S. Dessau, B. O. Wells (Stanford University, Stanford, CA), O. Jepsen (Max-Planck-Institute for Solid State Research, Stuttgart, Federal Republic of Germany), A. J. Arko, R. Bartlett (Stanford University, Stanford, CA), C. K. Shih (University of Texas, Austin, TX), F. Parmigiani (IBM, San Jose, CA), J. C. Huang, and P. A. P. Lindberg (Stanford University, Stanford, CA), *Physical Review B* **44**, No. 8, 3604-3626 (1991).



**Lattice Parameters and Local Atomic Structure of Silicon-Rich Si-Ge/Si (100) Films**, M. Matsuura, J. M. Tonnerre, and G. S. Cargill III (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 8, 3842-3849 (1991).

**Noise from Backscattered Electrons in the Integer and Fractional Quantized Hall Effects**, S. Washburn (University of North Carolina, Chapel Hill, NC 27599), R. J. Haug, K. Y. Lee, and J. M. Hong (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 8, 3875-3879 (1991).

**All-Electron *Ab Initio* Self-Consistent-Field Study of Electron Transfer in Scanning Tunneling Microscopy at Large and Small Tip-Sample Separations: Supermolecule Approach**, A. Farazdel (301 Trinity Court No. 1-7, Princeton, NJ 08540) and M. Dupuis (IBM, Kingston, NY), *Physical Review B* **44**, No. 8, 3909-3915 (1991).

**Measurement of the Hole Dispersion in a Quantum Well By Hot-Electron-Acceptor Luminescence**, M. Zachau, J. A. Kash, and W. T. Masselink (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 8, 4048-4051 (1991).

**Electronic and Vibrational Properties of  $C_{60}$  at Finite Temperature from *Ab Initio* Molecular Dynamics**, B. P. Feuston (IBM Corporation, Neighborhood Road, Kingston, NY 12401), W. Andreoni, M. Parrinello (IBM, Rüschlikon, Switzerland), and E. Clementi (IBM, Kingston, NY), *Physical Review B* **44**, No. 8, 4056-4059 (1991).

**Structural, Bonding, Dynamic, and Electronic Properties of Liquid Silicon: An *Ab Initio* Molecular-Dynamics Study**, I. Stich (Cavendish Laboratory, Madingley Road, Cambridge CB3 0HE, England), R. Car (International School for Advanced Studies, Trieste, Italy), and M. Parrinello (IBM, Rüschlikon, Switzerland), *Physical Review B* **44**, No. 9, 4262-4274 (1991).

**Scaling Behavior of the Critical Current of Grain-Boundary Junctions**, G. Deutscher (Tel Aviv University, 69978 Tel Aviv, Israel) and P. Chaudhari (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 9, 4664-4665 (1991).

**Energy Transfer from Noble-Gas Ions to Surfaces: Collisions with Carbon, Silicon, Copper, Silver, and Gold in the Range 100-400 eV**, H. Coufal, H. F. Winters, H. L. Bay (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and W. Eckstein (Institut für Plasmaphysik, Garching, Federal Republic of Germany), *Physical Review B* **44**, No. 10, 4747-4758 (1991).

**Nonoscillatory Magnetoresistance in Co/Cu/Co Layered Structures with Oscillatory Coupling**, V. S. Speriosu, B. Dieny, P. Humbert, B. A. Gurney, and H. Lefakis (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review B* **44**, No. 10, 5358-5361 (1991).

**First-Principles Calculation of the Ag-Cu Phase Diagram**, J. M. Sanchez, J. P. Stark (University of Texas, Austin, TX 78712), and V. L. Moruzzi (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 11, 5411-5418 (1991).

**Effect of the Electron-Plasmon Interaction on the Electron Mobility in Silicon**, M. V. Fischetti (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 11, 5527-5534 (1991).

**Strain and Dipole Effects in Covalent-Polar Semiconductor Superlattices**, I. P. Batra (IBM Corporation, 650 Harry Road, San Jose, CA 95120), S. Ciraci, and E. Özbay (Bilkent University, Ankara, Turkey), *Physical Review B* **44**, No. 11, 5550-5555 (1991).

**Silicon  $L_{2,3}$  Core Absorption Obtained at the Buried Al Si(111) Interface**, P. E. Batson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 11, 5556-5561 (1991).

**Adsorption of Cs on Si(111) 7×7: Studies on Photoemission from Surface States and Core Levels**, K. O. Magnusson, S. Wiklund, R. Dudde (University of Lund, Sölvegatan 1Y, 223 62 Lund, Sweden), and B. Reihl (IBM, Rüschlikon, Switzerland), *Physical Review B* **44**, No. 11, 5657-5663 (1991).

**SiO<sub>2</sub>/Si Interface Properties Using Positrons**, P. Asoka-Kumar (Brookhaven National Laboratory, Upton, NY 11973), K. G. Lynn, T. C. Leung, B. Nielsen, G. W. Rubloff, and Z. A. Weinberg (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 11, 5885-5888 (1991).

**Structure of Hydrogenated Amorphous Silicon from *Ab Initio* Molecular Dynamics**, F. Buda (Ohio State University, 174 West 18th Avenue, Columbus, OH 43210), G. L. Chiarotti, R. Car (International School for Advanced Studies, Trieste, Italy), and M. Parrinello (IBM, Rüschlikon, Switzerland), *Physical Review B* **44**, No. 11, 5908-5911 (1991).

**Femtosecond Spectroscopy of Carrier-Spin Relaxation in GaAs Al<sub>x</sub>Ga<sub>1-x</sub>As Quantum Wells**, M. Kohl, M. R. Freeman, D. D. Awschalom, and J. M. Hong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 11, 5923-5926 (1991).

**Fe on Au(100): Quantum-Well States Down to a Monolayer**, F. J. Himpsel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 11, 5966-5969 (1991).

**Mapping Quantum-Well Energy Profiles of III-V Heterostructures by Scanning-Tunneling-Microscope-Excited Luminescence**, P. Renaud and S. F. Alvarado (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Physical Review B* **44**, No. 12, 6340-6343 (1991).

**Universal Conductivity of Two-Dimensional Films at the Superconductor Insulator Transition**, M.-C. Cha (Indiana University, Bloomington, IN 47405), M. P. A. Fisher (IBM, Yorktown Heights, NY), S. M. Girvin (Indiana University, Bloomington, IN), M. Wallin (Umeå University, Umeå, Sweden), and A. P. Young (Commissariat à l'Energie Atomique, Gif-Sur-Yvette, France), *Physical Review B* **44**, No. 13, 6883-6902 (1991).

**Spin Engineering: Direct Determination of the Ruderman-Kittel-Kasuya-Yosida Far-Field Range Function in Ruthenium**, S. S. P. Parkin (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and D. Mauri (IBM, San Jose, CA), *Physical Review B* **44**, No. 13, 7131-7134 (1991).

**Vortex-Glass Transition in Three Dimensions**, J. D. Reger (Universität Mainz, D-6500 Mainz, Federal Republic of Germany), T. A. Tokuyasu (IBM, Yorktown Heights, NY), A. P. Young (École Normale Supérieure, Paris, France), and M. P. A. Fisher (IBM, Yorktown Heights, NY), *Physical Review B* **44**, No. 13, 7147-7150 (1991).

**Transient Behavior of Superfluid Turbulence in a Large Channel**, K. W. Schwarz and J. R. Rosen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review B* **44**, No. 14, 7563-7577 (1991).

**Temperature-Dependent Anisotropy of Cu(2) Nuclear-Relaxation Rate in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Below T<sub>c</sub>**, M. Takigawa (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), J. L. Smith, and W. L. Hults (Los Alamos National Laboratory, Los Alamos, NM), *Physical Review B* **44**, No. 14, 7764-7767 (1991).

**Charged Particle Evaporation from Hot Composite Nuclei: Evidence Over a Broad Z-Range for Distortions from Cold Nuclear Profiles**, W. E. Parker (University of California, Los Alamos, NM 87545), M. Kaplan (Carnegie Mellon University, Pittsburgh, PA), D. J. Moses, G. Larana, D. Logan, R. Lacey, J. M. Alexander (State University of New York, Stony Brook, NY), D. M. D. Rizzo (Istituto Nazionale, Fisica Nucleare, Naples, Italy), P. DeYoung (State University of New York, Stony Brook, NY), R. J. Welberry (IBM, Kingston, NY), and J. T. Bojer (Hope College, Holland, MI), *Physical Review C* **44**, No. 2, 774-795 (1991).

**Fermi-Dirac Distribution of Excitons in Coupled Quantum Wells**, J. A. Kash, M. Zachau, E. E. Mendez, J. M. Hong (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and T. Fukuzawa (IBM Japan, Tokyo, Japan), *Physical Review Letters* **66**, No. 17, 2247-2250 (1991).

**Resistance Anomaly near the Superconducting Transition Temperature in Short Aluminum Wires**, P. Santhanam, C. C. Chi, S. J. Wind, M. J. Brady, and J. J. Bucchnano (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **66**, No. 17, 2254-2257 (1991).

**Calorimetric Investigation of Clustering in KTaO<sub>3</sub>-Based Compounds**, S. Riegel, R. Wengenmayr, G. Weber (Technische Hochschule, D-W 6100, Darmstadt, Federal Republic of Germany), and U. T. Hochli (IBM, Rüschlikon, Switzerland), *Physical Review Letters* **66**, No. 19, 2488-2490 (1991).

**Ballistic-Electron-Emission Microscopy and Spectroscopy of GaP(110)-Metal Interfaces**, M. Prietsch and R. Ludeke (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **66**, No. 19, 2511-2514 (1991).

**Orientalional Order in Disordered Superconductors**, J. Toner (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **66**, No. 19, 2523-2526 (1991).

**Anomalous Strain Relaxation in SiGe Thin Films and Superlattices**, F. K. LeGoues, B. S. Meyerson, and J. F. Morar (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **66**, No. 22, 2903-2906 (1991).

**Vortex Variable-Range-Hopping Resistivity in Superconducting Films**, M. P. A. Fisher, T. A. Tokuyasu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), and A. P. Young (Commissariat à l'Energie Atomique Saclay, Gif-sur-Yvette, France), *Physical Review Letters* **66**, No. 22, 2931-2934 (1991).

**Femtosecond Time-Resolved Measurement of Desorption**, F. Budde, T. F. Heinz, M. M. T. Loy, J. A. Misewich, F. de Rougemont, and H. Zacharias (IBM, Yorktown Heights, NY), *Physical Review Letters* **66**, No. 23, 3024-3027 (1991).

**Silicide Formation and the Generation of Point Defects in Silicon**, B. B. Svensson (Royal Institute of Technology, P.O. Box 1298, S-164 28 Kista, Sweden), M. O. Aboelfotoh (IBM, Yorktown Heights, NY), and J. L. Lindstrom (National Defense Research Institute, Linköping, Sweden), *Physical Review Letters* **66**, No. 23, 3028-3031 (1991).

**Surface Diffusion and Phase Transition on the Ge(111) Surface Studied by Scanning Tunneling Microscopy**, R. M. Feenstra, A. J. Slavin, G. A. Held, and M. A. Lutz (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **66**, No. 25, 3257-3260 (1991).

**Glasslike Thermal Properties and Isotope Effect in Rb<sub>1-x</sub>(NH<sub>4</sub>)H<sub>2</sub>PO<sub>4</sub> Mixed Crystals**, J.-F. Berret (Université de Montpellier II, F-34000 Montpellier, France), M. Meissner (Hahn-Meitner Institut Berlin, Berlin, Federal Republic of Germany), S. K. Watson, R. O. Pohl (Cornell University, Ithaca, NY), and E. Courtens (IBM, Yorktown Heights, NY), *Physical Review Letters* **67**, No. 1, 93-96 (1991).

**Dynamic Screening of the Core Exciton by Swift Electrons in Electron-Energy-Loss Scattering**, P. E. Batson and J. Bruley (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 3, 350-353 (1991).

**Odd-Parity Singlet Pairing in the Positive-U Hubbard Model**, R. T. Scalettar, R. P. Singh (University of California, Davis, CA 95616), and S. Zhang (IBM, San Jose, CA), *Physical Review Letters* **67**, No. 3, 370-373 (1991).

**Nature of the Step-Height Transition on Vicinal Si(001) Surfaces**, E. Pehlke and J. Tersoff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 4, 465-468 (1991).

**Vortex Confinement by Columnar Defects in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> Crystals: Enhanced Pinning at High Fields and Temperatures**, L. Civale, A. D. Marwick, T. K. Worthington (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), M. A. Kirk (Argonne National Laboratory, Argonne, IL), J. R. Thompson (Oak Ridge National Laboratory, Oak Ridge, TN), L. Krusin-Elbaum (IBM, Yorktown Heights, NY), Y. Sun (Oak Ridge National Laboratory, Oak Ridge, TN), J. R. Clem (Iowa State University, Ames, IA), and F. Holtzberg (IBM, Yorktown Heights, NY), *Physical Review Letters* **67**, No. 5, 648-651 (1991).

**Thermally Assisted Tunneling: CH<sub>3</sub> Dissociation on Pt(111)**, J. Harris, J. Simon (Forschungszentrum Jülich GmbH, D-5170 Jülich, Federal Republic of Germany), A. C. Luntz, C. B. Mullins, and C. T. Rettner (IBM, San Jose, CA), *Physical Review Letters* **67**, No. 5, 652–655 (1991).

**Mechanical Parametric Amplification and Thermomechanical Noise Squeezing**, D. Rugar and P. Grütter (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review Letters* **67**, No. 6, 699–702 (1991).

**Defect Self-Annihilation in Surfactant-Mediated Epitaxial Growth**, M. Horn-von Hoegen (Universität Hannover, Appelstrasse 2, 3000 Hannover 1, Federal Republic of Germany), F. K. LeGoues, M. Copel, M. C. Reuter, and R. M. Tromp (IBM, Yorktown Heights, NY), *Physical Review Letters* **67**, No. 9, 1130–1133 (1991).

**Ultrafast Electron Dynamics at the Ge(111) 2 × 1 Surface**, M. Baeumler and R. Haight (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 9, 1153–1156 (1991).

**Phase Diagram of Vicinal Si(001) Surfaces**, E. Pehlke and J. Tersoff (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 10, 1290–1293 (1991).

**Experimental Study of Diffusion and Segregation in a Si-(Ge<sub>x</sub>Si<sub>1-x</sub>) Heterostructure**, S. M. Hu, D. C. Ahlgren, P. A. Ronheim, and J. O. Chu (IBM Corporation, Route 52, Hopewell Junction, NY 12533), *Physical Review Letters* **67**, No. 11, 1450–1453 (1991).

**Evidence of Pairing and Its Role in the Recombinative Desorption of Hydrogen from the Si(100)-2 × 1 Surface**, J. J. Boland (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 12, 1539–1542 (1991).

**Atomic Resolution in Lensless Low-Energy Electron Holography**, H.-W. Fink, H. Schmid, H. J. Kreuzer (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), and A. Wierzbicki (Dalhousie University, Halifax, Nova Scotia, Canada), *Physical Review Letters* **67**, No. 12, 1543–1546 (1991).

**Remanent Magnetization of a Simple Ferromagnet**, R. V. Chamberlin (Arizona State University, Tempe, AZ 85287) and F. Holtzberg (IBM, Yorktown Heights, NY), *Physical Review Letters* **67**, No. 12, 1606–1609 (1991).

**Chemisorption-Induced Changes in the X-Ray-Absorption Fine Structure of Adsorbed Species**, P. A. Stevens, T. H. Upton (Exxon Research and Engineering Company, Route 22 East, Annandale, NJ 08801), J. Stöhr (IBM, San Jose, CA), and R. J. Madix (Stanford University, Stanford, CA), *Physical Review Letters* **67**, No. 12, 1653–1656 (1991).

**Comment on "Shape Fluctuations of Polymerized or Solidlike Membranes"**, F. F. Abraham (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physical Review Letters* **67**, No. 12, 1669 (1991).

**Reply on "Orientational Order in Disordered Superconductors"**, J. Toner (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 13, 1810 (1991).

**Boundary-Induced Phase Transitions in Driven Diffusive Systems**, J. Krug (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Physical Review Letters* **67**, No. 14, 1882–1885 (1991).

**Pre-College Physics Education Programs from the Research Community**, B. B. Schwartz (Brooklyn College of the City University of New York, Brooklyn, NY 11210) and J. J. Wynne (IBM, Yorktown Heights, NY), *Physics Today* **44**, No. 9, 48–54 (1991).

**Naught for Your Comfort**, J.-J. Duby (IBM France, Paris, France), *Physics World* **4**, No. 6, 21 (1991).

**Fluoride Fibers Yield Blue-Green Lasers**, R. MacFarlane (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Physics World* **4**, No. 10, 18 (1991).

**Self-Induced Repair of Printed-Circuit Boards**, C. J. Chen (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), J. P. Partridge (IBM, Austin, TX), B. Hussey, and A. Gupta (IBM, Yorktown Heights, NY), *Plating and Surface Finishing* **78**, No. 6, 45–49 (1991).

**Chemical Modification of Matrix Resin Networks with Engineering Thermoplastics: 1. Synthesis, Morphology, Physical Behaviour and Toughening Mechanisms of Poly(arylene Ether Sulfone) Modified Epoxy Networks**, J. L. Hedrick (IBM Corporation, 650 Harry Road, San Jose, CA 95120), I. Yilgor (Goldschmidt, Hopewell, VA), M. Jurek (CIBA-Geigy Corporation, Ardsley, NY), J. C. Hedrick, G. L. Wilkes, and J. E. McGrath (State University of Virginia, Blacksburg, VA), *Polymer* **32**, No. 11, 2020–2032 (1991).

**Poly(Aryl Ether Oxadiazoles)**, J. L. Hedrick (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Polymer Bulletin* **25**, No. 5, 543–550 (1991).

**Reconfigurable SIMD Massively Parallel Computers**, H. Li (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and Q. F. Stout (University of Michigan, Ann Arbor, MI), *Proceedings of the IEEE* **79**, No. 4, 429–443 (1991).

**Routing Techniques for Massively Parallel Communication**, S. A. Felperin, L. Gravano, G. D. Pifarré (IBM Argentina, 1300 Buenos Aires, Argentina), and J. L. C. Sanz (IBM, San Jose, CA), *Proceedings of the IEEE* **79**, No. 4, 488–503 (1991).

**Semiconductor Science: The Fourth Generation**, T. P. Smith III (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Proceedings of the IEEE* **79**, No. 8, 1181–1187 (1991).

**Prediction of Optimal Peptide Mixtures to Induce Broadly Neutralizing Antibodies to Human Immunodeficiency Virus Type 1**, L. H. Holley (IBM Corporation, 101 Main Street, Cambridge, MA), J. Goudsmit (University of Amsterdam, Amsterdam, The Netherlands), and M. Karplus (Harvard University, Cambridge, MA), *Proceedings of the National Academy of Sciences of the United States of America* **88**, No. 15, 6800–6804 (1991).

**Two-Dimensional Ordering of the DNA Base Guanine Observed by Scanning Tunneling Microscopy**, W. M. Heckl (University of Munich, Schellingstrasse 4, D-8000 Munich 40, Federal Republic of Germany), D. P. E. Smith, G. Binning, H. Klagges (IBM, Munich, Federal Republic of Germany), T. W. Hansch (University of Munich, Munich, Federal Republic of Germany), and J. Maddocks (University of Sheffield, Sheffield, United Kingdom), *Proceedings of the National Academy of Sciences of the United States of America* **88**, No. 18, 8003-8005 (1991).

**Random Multifractals: Negative Dimensions and the Resulting Limitations of the Thermodynamic Formalism**, B. B. Mandelbrot (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Proceedings of the Royal Society of London Series A* **434**, No. 1890, 79-88 (1991).

**Field-Cycling Relaxometry of Protein Solutions and Tissue: Implications for MRI**, S. H. Koenig and R. D. Brown (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Progress in Nuclear Magnetic Resonance Spectroscopy* **22**, No. 6, 487-603 (1990).

## R

**Smoothing and Interpolation in a Convex Subset of a Hilbert Space: II. The Semi-Norm Case**, C. A. Micchelli (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and F. I. Utreras (Universidad de Chile, Santiago, Chile), *RAIRO, Mathematical Modeling and Numerical Analysis* **25**, No. 4, 425-440 (1991).

**Acyclic Coloring of Graphs**, N. Alon (Tel Aviv University, Tel Aviv, Israel), C. McDiarmid (IBM, San Jose, CA), and B. Reed (University of Oxford, Oxford, England), *Random Structures & Algorithms* **2**, No. 3, 277-288 (1991).

**Randomness in Numbers**, G. J. Chaitin (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Recherche* **22**, No. 232, 610-615 (1991).

**Step Scan Fourier-Transform Infrared Spectrometer**, C. J. Manning, R. A. Palmer (Duke University, Durham, NC 27706), and J. L. Chao (IBM, Research Triangle Park, NC), *Review of Scientific Instruments* **62**, No. 5, 1219-1229 (1991).

**An Achromatic Retarding Mode for the Menzinger Lens Systems**, J. M. Jacobs and R. A. McCorkle (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Review of Scientific Instruments* **62**, No. 8, 2044-2045 (1991).

## S

**Field Induced Nanometer Scale to Atomic Scale Manipulation of Silicon Surfaces with the STM**, I. W. Lyo and P. Avouris (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Science* **253**, No. 5016, 173-176 (1991).

**Grain Boundary Diffusion of Co in  $\alpha$ -Zr Under Hydrostatic Pressure**, K. Vierende (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), C. Herzig (Institut für Metallforschung, Münster, Germany), and W. Lojowski (Unipress, Warsaw, Poland), *Scripta Metallurgica et Materialia* **25**, No. 7, 1707-1712 (1991).

**$\eta$  Cu<sub>3</sub>Sn<sub>3</sub> Precipitates in Cu/Pb-Sn Solder Joints**, L. E. Felton, K. Rajan, P. J. Ficalora (Rensselaer Polytechnic Institute, Troy, NY 12180), and P. Singh (IBM, Poughkeepsie, NY), *Scripta Metallurgica et Materialia* **25**, No. 10, 2329-2333 (1991).

**Electrical Properties of Copper-Silicon Schottky Barriers**, M. O. Aboelfotoh (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598) and B. G. Svensson (Department of Solid State Electronics, Stockholm, Sweden), *Semiconductor Science and Technology* **6**, No. 7, 647-652 (1991).

**Hydrogen in Semiconductors: Ion-Beam Techniques**, A. D. Marwick (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Semiconductors and Semimetals* **34**, 185-224 (1991).

**Algorithms for Scheduling Imprecise Computations with Timing Constraints**, W.-K. Shih, J. W. S. Liu (University of Illinois, 1304 West Springfield Avenue, Urbana, IL 61801), and J.-Y. Chung (IBM, Yorktown Heights, NY), *SIAM Journal of Computing* **20**, No. 3, 537-552 (1991).

**Minimum Diameter Spanning Trees and Related Problems**, J.-M. Ho, D. T. Lee (Northwestern University, Evanston, IL 60208), C.-H. Chang (New York University, New York, NY), and C. K. Wong (IBM, Yorktown Heights, NY), *SIAM Journal on Computing* **20**, No. 5, 987-997 (1991).

**Towards a Large Set of Steiner Quadruple Systems**, T. Etzion (Technion, Israel Institute of Technology, Haifa, Israel) and A. Hartman (IBM, Haifa, Israel), *SIAM Journal on Discrete Mathematics* **4**, No. 2, 182-195 (1991).

**On the Power of Threshold Circuits with Small Weights**, K. Y. Siu (Stanford University, Stanford CA 94305) and J. Bruck (IBM, San Jose, CA), *SIAM Journal on Discrete Mathematics* **4**, No. 3, 423-435 (1991).

**The One-Dimensional Wigner-Poisson Problem and Its Relation to the Schrödinger-Poisson Problem**, H. Steinruck (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *SIAM Journal on Mathematical Analysis* **22**, No. 4, 957-972 (1991).

**A Square Root and Division Free Givens Rotation for Solving Least Squares Problems on Systolic Arrays**, J. Götz (Yale University, P.O. Box 2158, New Haven, CT 06520) and U. Schwiigelshohn (IBM, Yorktown Heights, NY), *SIAM Journal on Scientific and Statistical Computing* **12**, No. 4, 800-807 (1991).

**Block Gauss Reduction to Hessenberg Form**, A. A. Dubrulle (IBM Corporation, 5600 Cottle Road, San Jose, CA 95193), *SIAM Journal on Scientific and Statistical Computing* **12**, No. 5, 1245-1253 (1991).

**A Lower Bound on Probabilistic Algorithms for Distributive Ring Coloring**, M. Naor (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *SIAM Photonics Technology Discrete Mathematics* **4**, No. 3, 409-412 (1991).

**RoIm and the IBM-Siemens Alliance**, E. M. Hancock and P. Pribilla (IBM Corporation, Somers, NY), *Siemens Review* **58**, No. 3, 4-8 (1991).

**Style Control in the Quill Document Editing System**, Y. Wolfsthal (IBM Corporation, 1530 Page Mill Road, Palo Alto, CA 94304), *Software* **21**, No. 6, 625-638 (1991).

**X-Ray Photoelectron Spectroscopy Study of Chemically Etched Nd-Ce-Cu-O Surfaces**, R. P. Vasquez (California Institute of Technology, Pasadena, CA 91109), A. Gupta (IBM, Yorktown Heights, NY), and A. Kussmaul (Massachusetts Institute of Technology, Cambridge, MA), *Solid State Communications* **78**, No. 4, 303-306 (1991).

**Oxygen Interaction with Defects at the Si/SiO<sub>2</sub> Interface**, J. H. Stathis (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), S. Rigo, and I. Trimaille (Université Paris VII, Paris, France), *Solid State Communications* **79**, No. 2, 119-120 (1991).

**Radiative Recombination in MBE-Prepared Epitaxial Si and Si<sub>1-x</sub>Ge<sub>x</sub> Layers**, G. A. Northrop, D. J. Wolford, and S. S. Iyer (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Solid State Communications* **79**, No. 2, 161-165 (1991).

**Optical Third-Harmonic Generation in Layered Perovskite-Type Material (C<sub>10</sub>H<sub>21</sub>NH<sub>3</sub>)<sub>2</sub>PbI<sub>4</sub>**, C.-Q. Xu, T. Kondo, H. Sakakura (University of Tokyo, Tokyo 113, Japan), K. Kumata (IBM Japan Ltd., Tokyo, Japan), Y. Takahashi, and R. Ito (University of Tokyo, Tokyo, Japan), *Solid State Communications* **79**, No. 3, 245-248 (1991).

**Magneto-Optical Effects of Excitons in (C<sub>10</sub>H<sub>21</sub>NH<sub>3</sub>)<sub>2</sub>PbI<sub>4</sub> Under High Magnetic Fields up to 40 T**, C. Q. Xu, H. Sakakura, T. Kondo, S. Takeyama, N. Miura (University of Tokyo, Tokyo 113, Japan), Y. Takahashi, K. Kumata, and R. Ito (IBM Japan, Tokyo, Japan), *Solid State Communications* **79**, No. 3, 249-253 (1991).

**Is the Momentum of a Tunneling Electron Real or Imaginary? An Alternative Description of the Tunneling Process**, P. Guéret (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Solid State Communications* **79**, No. 5, 403-406 (1991).

**Angle Resolved Photoemission of NiO (001)**, Z.-X. Shen, R. S. List, D. S. Dessau (Stanford University, Stanford, CA 94305), A. J. Arko (Los Alamos National Laboratory, Los Alamos, NM), R. Bartlett (Stanford University, Stanford, CA), O. Jepsen (Max-Planck-Institute for Solid State Research, Stuttgart, Germany), B. O. Wells (Stanford University, Stanford, CA), and F. Parmigiani (IBM, San Jose, CA), *Solid State Communications* **79**, No. 7, 623-628 (1991).

**Charge Trapping and Retention in Ultra-Thin Oxide-Nitride Oxide Structures**, P. Olivo (Università di Bologna, Viale Risorgimento 2, 40136 Bologna, Italy), Z. A. Weinberg, K. J. Stein, and D. S. Wen (IBM, Yorktown Heights, NY), *Solid-State Electronics* **34**, No. 6, 609-611 (1991).

**Simultaneous Prediction Intervals for Multiple Forecasts Based on Bonferroni and Product Type Inequalities**, J. Glaz (University of Connecticut, Storrs, CT 06269) and N. Ravishanker (IBM, Yorktown Heights, NY), *Statistics and Probability Letters* **12**, No. 1, 57-63 (1991).

**On Translating Ordinary Mathematical Notation**, G. E. Revesz (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Structured Programming* **12**, No. 3, 115-122 (1991).

**Mutual Drag of 2D and 3D Electron Gases in Heterostructures**, P. M. Solomon and B. Laikhtman (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Superlattices and Microstructures* **10**, No. 1, 89-94 (1991).

**Microindentation Fatigue Tests on Submicron Carbon Films**, T. W. Wu (IBM Corporation, 650 Harry Road, San Jose, CA 95120), A. L. Shull (Harvard University, Cambridge, MA), and R. Berriche (University of Minnesota, Minneapolis, MN), *Surface and Coatings Technology* **47**, No. 1-3, 696-709 (1991).

**Comparison Between Si(100) and Si(111) in the Reaction with Oxygen at High Temperatures**, U. Memmert and M. L. Yu (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Surface Science* **245**, No. 3, L185-L189 (1991).

**Observation of Mass Transport on Au(110)-(1 × 2) Reconstructed Surfaces Using Scanning Tunneling Microscopy**, J. K. Gimzewski, R. Berndt, and R. R. Schlittler (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Surface Science* **247**, Nos. 2-3, 327-332 (1991).

**Thin Film Island Growth Kinetics: A Grazing Incidence Small Angle X-Ray Scattering Study of Gold on Glass**, J. R. Levine (IBM Corporation, Route 52, Hopewell Junction, NY 12533), J. B. Cohen, and Y. W. Chung (Northwestern University, Evanston, IL), *Surface Science* **248**, Nos. 1-2, 215-224 (1991).

**The Adsorption of Disilane on Si(111)-7 × 7 as Studied by Multiple Internal Reflection Spectroscopy**, K. J. Uram and U. Jansson (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Surface Science* **249**, Nos. 1-3, 105-116 (1991).

**Diffraction and Rainbows in the Scattering of Argon from 2H-W**, E. K. Schweizer, C. T. Rettner (IBM Corporation, 650 Harry Road, San Jose, CA 95120), and S. Holloway (University of Liverpool, Liverpool, UK), *Surface Science* **249**, Nos. 1-3, 335-349 (1991).

**A Molecular Dynamics Study of Radiation Induced Electrostatic Disruption of Insulator Surfaces**, E. Y. Wu (IBM Corporation, Rochester, MN 55901), R. J. Friauf, and T. P. Armstrong (University of Kansas, Lawrence, KS), *Surface Science* **249**, Nos. 1-3, 360-364 (1991).

**Evidence for Two-Step Disorder of the Au(110)-1 × 2 Reconstructed Surface**, D. T. Keane, P. A. Bancel, J. L. Jordan-Sweet, G. A. Held (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), A. Mak, and R. J. Birgeneau (Massachusetts Institute of Technology, Cambridge, MA), *Surface Science* **250**, Nos. 1-3, 8-16 (1991).

**Quantitative Secondary Ion Mass Spectrometry of Fluorocarbon Polymers**, M. R. Lorenz, V. J. Novotny, and V. R. Deline (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Surface Science* **250**, Nos. 1-3, 112-122 (1991).

**CrLVV Auger Emission and Photoreduction of Hexavalent Cr Oxides**, A. G. Schrott, G. S. Frankel (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), A. J. Davenport, H. S. Isaacs (Brookhaven National Laboratory, Upton, NY 11973), C. V. Jahnes, and M. V. Russak (IBM, Yorktown Heights, NY), *Surface Science* **250**, Nos. 1-3, 139-146 (1991).

**Emission of Polarized Light by Slow Ions After Excitation Near a Magnetic Surface**, A. Narmann (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), M. Schleberger, W. Heiland (Universität Osnabrück, Osnabrück, Federal Republic of Germany), C. Huber, and J. Kirschner (IBM, Yorktown Heights, NY), *Surface Science* **251**, 248-252 (1991).

**Scanning Tunneling Microscopy and Spectroscopy of Cleaved and Annealed Ge(111) Surfaces**, R. M. Feenstra and A. J. Slavin (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Surface Science* **251**, 401-407 (1991).

**BEEN Spectroscopy at Interfaces of Au, Ag, Cu, Mg, and Ni Films with n-Gap(110)**, M. Prietsch and R. Ludeke (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Surface Science* **251**, 413-417 (1991).

**Surface Melting Simulation of Au(110)**, F. Ercolessi, S. Iarlori, O. Tomagnini, E. Tosatti (International School for Advanced Studies, Via Beirut 4, I-34014 Trieste, Italy), and X. J. Chen (IBM Italy, Rome, Italy), *Surface Science* **251**, 645-649 (1991).

**Liquid Metal Surface: Positional and Orientational Correlations**, S. Iarlori (IBM European Center for Scientific and Engineering Computing, Via Giorgione 159, 00147 Rome, Italy), F. Ercolessi, and E. Tosatti (International School for Advanced Studies, Trieste, Italy), *Surface Science* **251**, 951-954 (1991).

**Orientation and Absolute Coverage of Benzene, Aniline, and Phenol on Ag(110) Determined by NEXAS and XPS**, J. L. Solomon, R. J. Madix (Stanford University, Stanford, CA 94305), and J. Stohr (IBM, San Jose, CA), *Surface Science* **255**, Nos. 1-2, 12-30 (1991).

**On the Formation and Bonding of a Surface Carbonate on Ni(100)**, R. J. Behm and C. R. Brundle (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Surface Science* **255**, No. 3, 327-343 (1991).

**Characterization of Oxide Surfaces by Infrared Spectroscopy of Adsorbed Carbon-Monoxide: A Theoretical Investigation of the Frequency Shift of Co on MgO and NiO**, G. Pacchioni, G. Cogliandro (University of Milan, Via Venezia 21, I-20133 Milan, Italy), and P. S. Bagus (IBM, San Jose, CA), *Surface Science* **225**, No. 3, 344-354 (1991).

**Epitaxial Growth of Fe on Au(111): A Scanning Tunneling Microscopy Investigation**, B. Voigtlander (Forschungszentrum Jülich, Postfach 1913, D-5170 Jülich, Federal Republic of Germany), G. Meyer, and N. M. Amer (IBM, Yorktown Heights, NY), *Surface Science* **255**, No. 3, L529-L535 (1991).

**Polyanilines: In Situ Induced Conductivity and Applications Thereof**, M. Angelopoulos and J. M. Shaw (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Synthetic Metals* **41**, No. 3, 1109 (1991).

## T

**Density-Matrix Averaged Atomic Natural Orbital (ANO) Basis-Sets for Correlated Molecular Wave-Functions II. Second Row Atoms**, P. O. Widmark (IBM Sweden, P.O. Box 4104, 20312 Malmö, Sweden), B. Joakim, Persson, and B. O. Roos (Chemical Center of Lund, Lund, Sweden), *Theoretica Chimica Acta* **79**, No. 6, 419-432 (1991).

**Accumulators: New Logic Variable Abstractions for Functional Languages**, K. Pingali (Cornell University, Ithaca, NY 14853) and K. Ekanadham (IBM, Yorktown Heights, NY), *Theoretical Computer Science* **81**, No. 2, 201-221 (1991).

**On Total Functions, Existence Theorems and Computational Complexity**, N. Megiddo (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and C. H. Papadimitriou (Computer Technology Institute, Patras, Greece), *Theoretical Computer Science* **81**, No. 2, 317-324 (1991).

**Size-Depth Trade-Offs for Monotone Arithmetic Circuits**, M. Snir (IBM Corporation, P. O. Box 218, Yorktown Heights, NY 10598), *Theoretical Computer Science* **82**, No. 1, 85-93 (1991).

**Constant-Round Perfect Zero-Knowledge Computationally Convincing Protocols**, G. Brassard (University of Montréal, Montréal H3C 3J7, Québec, Canada), C. Crépeau (Université de Paris-Sud, Orsay, France), and M. Yung (IBM, Yorktown Heights, NY), *Theoretical Computer Science* **84**, No. 1, 23-54 (1991).

**On Zero-Testing and Interpolation of  $k$ -Sparse Multivariate Polynomials over Finite Fields**, M. Clausen (University of Bonn, D-5300 Bonn, Federal Republic of Germany), A. Dress (Universität Bielefeld, Germany), J. Grabmeier (IBM Germany, Sindelfingen, Federal Republic of Germany), and M. Karpinski (Universität Bonn, Federal Republic of Germany), *Theoretical Computer Science* **84**, No. 2, 151-164 (1991).

**Nonuniform Proof Systems: A New Framework to Describe Nonuniform and Probabilistic Complexity Classes**, J. Kämper (IBM Germany, Tiergartenstrasse 8, D-6900 Heidelberg, Federal Republic of Germany), *Theoretical Computer Science* **85**, No. 2, 305-331 (1991).

**Classification of all the Minimal Bilinear Algorithms for Computing the Coefficients of the Product of Two Polynomials Modulo a Polynomial. Part II: the Algebra  $G[u]/u^n$** , A. Averbuch (Tel Aviv University, IL-69978 Tel Aviv, Israel), Z. Galil, and S. Winograd (IBM, Yorktown Heights, NY), *Theoretical Computer Science* **86**, No. 2, 143-203 (1991).

**An In Situ Auger Electron Spectroscopy Study of Chromium Thin Film Coverage of Copper Surfaces: Effects of Surface Morphology, Temperature and Environment**, H. Lefakis (IBM Corporation, 650 Harry Road, San Jose, CA 95120) and P. S. Ho (IBM, Yorktown Heights, NY), *Thin Solid Films* **200**, No. 1, 67-76 (1991).



**On the Formation of Copper-Rich Copper Silicides**, L. Stolt (Institute for Microelectronics, Box 1084, 16421 Kista, Sweden), F. M. d'Heurle, J. M. E. Harper (IBM, Yorktown Heights, NY), *Thin Solid Films* **200**, No. 1, 147-156 (1991).

**An Analysis of Thermal Stresses in a Multilayer Thin Film** Printhead, J. H. Jou, L. Hsu (National Tsing-Hua University, Hsinchu 300, Taiwan), L. S. Chang (IBM, San Jose, CA), *Thin Solid Films* **201**, No. 2, 253-265 (1991).

**Reluctant Etchability of Dielectric  $Al_2O_3$  Films Sputtered in Water Vapor and  $Ar-O_2$  Environments**, L. M. Gignac (IBM Corporation, Route 52, Hopewell Junction, NY 12533) and S. H. Risbud (University of California, Davis, CA), *Thin Solid Films* **202**, No. 1, 83-89 (1991).

**Preparation and Characterization of Thin Polymer Bilayer Films by Neutron Reflection**, A. Karim (University of Minnesota, Minneapolis, MN 55455), B. H. Arendt (California Institute of Technology, Pasadena, CA), G. P. Felcher, and T. P. Russell (IBM, San Jose, CA), *Thin Solid Films* **202**, No. 2, 345-350 (1991).

**A Study of Inlet Flow Distortion Effects on Automotive Catalytic Converters**, G. Bella, V. Rocco (University of Rome 2, I-00173 Rome, Italy), and M. Maggiore (IBM Italy, Rome, Italy), *Transactions of the ASME, Journal of Engineering for Gas Turbines and Power* **113**, No. 3, 419-426 (1991).

## U

**Design of a New Photo-Emission/Low-Energy Electron Microscope for Surface Studies**, R. M. Tromp and M. C. Reuter (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Ultramicroscopy* **36**, Nos. 1-3, 99-106 (1991).

## V

**Closed Loop Intracavity Photoacoustic Overtone Spectroscopy**, C. R. Moylan (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Vibrational Spectroscopy* **1**, No. 4, 377-381 (1991).

## W

**A Daily Hydroclimatological Data Set for the Continental United States**, J. R. Wallis (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), D. P. Lettenmaier (University of Washington, Seattle, WA), and E. F. Wood (Princeton University, Princeton, NJ), *Water Resources Research* **27**, No. 7, 1657-1663 (1991).

**Effects of Filler Particles on Abrasive Wear of Elastomer-Based Composites**, A. C. M. Yang, J. E. Ayala, A. Bell, and J. C. Scott (IBM Corporation, 650 Harry Road, San Jose, CA 95120), *Wear* **146**, No. 2, 349-366 (1991).

## Z

**On the Numerical Treatment of a One-Dimensional Convection-Diffusion Problem with an Arrhenius Source Term**, R. J. Gathmann and F. K. Hebeker (IBM Deutschland GmbH, Tiergartenstr. 15, D-6900 Heidelberg, Federal Republic of Germany), *Zeitschrift für Angewandte Mathematik und Mechanik* **71**, No. 6, T668-T670 (1991).

**The Wigner Function for Thermal Equilibrium**, H. Steinrück and F. Odeh (IBM Corporation, P.O. Box 218, Yorktown Heights, NY 10598), *Zeitschrift für Angewandte Mathematik und Physik* **42**, No. 4, 471-487 (1991).

**Oxidation of Lead-Indium Single-Phase Alloys at Low Pressures**, M.-X. Zhang, Y. A. Chang (University of Wisconsin, 1509 University Avenue, Madison, WI 53706), and V. C. Marcotte (IBM, Hopewell Junction, NY), *Zeitschrift für Metallkunde* **82**, No. 8, 599-602 (1991).

**Electric Field Effect on Superconducting  $YBa_2Cu_3O_{7-x}$  Films**, J. Mannhart, J. G. Bednorz, K. A. Muller, and D. G. Schlom (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Zeitschrift für Physik B* **83**, No. 3, 307-311 (1991).

**From Low to High-Temperature Superconductivity: A Dimensional Crossover Phenomenon? A Finite Size Effect?**, T. Schneider (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), Z. Gedik, and S. Ciraci (Bilkent University, Ankara, Turkey), *Zeitschrift für Physik B* **83**, No. 3, 313-321 (1991).

**Covalency in the Electronic Structure of  $Fe_3O_4$ : An Ultraviolet Inverse Photoemission Investigation**, M. Sacrotti, F. Ciccaci, M. Finazzi, E. Vescovo (Politecnico Milano, Piazza Leonardo da Vinci 32, I-20133 Milan, Italy), and S. F. Alvarado (IBM, Rüschlikon, Switzerland), *Zeitschrift für Physik B* **84**, No. 2, 243-246 (1991).

**Indication for a Novel Phase in the Quantum Paraelectric Regime of  $SrTiO_3$** , K. A. Muller, M. Berlinger (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland) and E. Tosatti (International School for Advanced Studies, Trieste, Italy), *Zeitschrift für Physik B* **84**, No. 2, 277-283 (1991).

**Electric and Magnetic Properties of the First Layered Conducting Titanium and Niobium Oxides**, F. Lichtenberg (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), T. Williams (CSIRO, Victoria, Australia), A. Reller (University of Zurich, Zurich, Switzerland), D. Widmer, and J. G. Bednorz (IBM, Rüschlikon, Switzerland), *Zeitschrift für Physik B* **84**, No. 3, 369-374 (1991).

**Conduction Electron Spin Resonance of Silver Cluster in Zeolite AGY**, F. Blatter and K. W. Blazey (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Zeitschrift für Physik D* **18**, No. 4, 427-429 (1991).

**Computer-Simulations of Small Semiconductor and Metal Clusters**, W. Andreoni (IBM Corporation, Säumerstrasse 4, 8803 Rüschlikon, Switzerland), *Zeitschrift für Physik D* **19**, Nos. 1-4, 31-36 (1991).

**Temperature-Induced Structural Transitions and Vibrational Properties of Microclusters: Ab Initio Molecular Dynamics Studies**, U. Rothlisberger (University of Bern, CH-3000 Bern 9, Switzerland) and W. Andreoni (IBM, Rüschlikon, Switzerland), *Zeitschrift für Physik D* **20**, Nos. 1-4, 243-246 (1991).